Site Team Evaluation Prioritization

CERCLA Report

Illinois Environmental Protection Agency

2200 Churchill Road
P. O. Box 19276
Springfield, IL 62794-9276

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

On April 20, 1995, the Illinois Environmental Protection Agency's (IEPA) Site Assessment Program was tasked by the United States Environmental Protection Agency (USEPA) to conduct a Site Team Evaluation Prioritization (STEP) at Matheson Gas Products in Joliet, Will County, Illinois.

The Matheson Gas Products site was initially placed on the Comprehensive Environmental Response, Compensation, and Liability System (CERCLIS) in November of 1988 as a result of a request for discovery action initiated by IEPA. The site was initially evaluated in the form of a CERCLA Preliminary Assessment completed in September of 1989. The Preliminary Assessment recommended that further action including sampling be conducted at the site. Therefore, on June 4 and 5, 1991, IEPA Site Assessment Program personnel conducted a CERCLA Screening Site Inspection which included the collection of soil and groundwater samples.

As a result of the CERCLA Screening Site Inspection, the groundwater and surface water pathways were identified as areas of concern. Therefore, in the summer of 1995, IEPA Site Assessment Program personnel prepared a STEP workplan for Matheson Gas Products. The workplan was subsequently submitted to the Region V offices of USEPA. The STEP was conducted to assist in determining the priority status of the site. The field investigation portion of the STEP was conducted in August 1995. During this inspection, personnel from the IEPA collected five soil, five sediment, and three groundwater samples.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

Matheson Gas Products is an active distributor of high purity gases. They have been in operation since 1946. Matheson Gas Products is a 5.44 acre site located on Manhatten Road and Richards Street (Section 22 of Township 35 North and Range 10 East) in the southern part of Joliet, Illinois (refer to Figure 2-1, 2-2, and 2-3).

The land comprising the site is flat to sloping toward Sugar Run Creek to the south and west. The site is fenced along the northern and eastern boundaries. It is accessible along the southern and western boundaries across Sugar Run Creek. Prominent features include the main operational building and adjacent storage tanks, an incinerator, an on-site drinking water well, a cylinder disposal area where cylinders were buried, a quarry pit, and a tar pit. The main operation building is located on the northeast and north-central portion of the site. To the west of the building are the storage tanks that hold scrubber waste. The incinerator or thermal oxidizer is used to incinerate remnant gas. There is a well located on site which is used by workers for drinking water. The well is 106 feet deep and is located in the eastern portion of the main manufacturing building. Scrap cylinders were buried in an area west and north of the quarry pond on the southeast portion of the site. A quarry pit and a tar pit remaining from previous refinery activities are located to the south and west of the main manufacturing building, respectively. Sugar Run Creek is located adjacent to the site. Wetlands and other sensitive environments are located along the surface water route (refer to Figure 2-4 and 2-9).

The surrounding land use can be described as industrial and residential. Matheson Gas Products is bordered by Will County Farm Services to the immediate north with residential and industrial

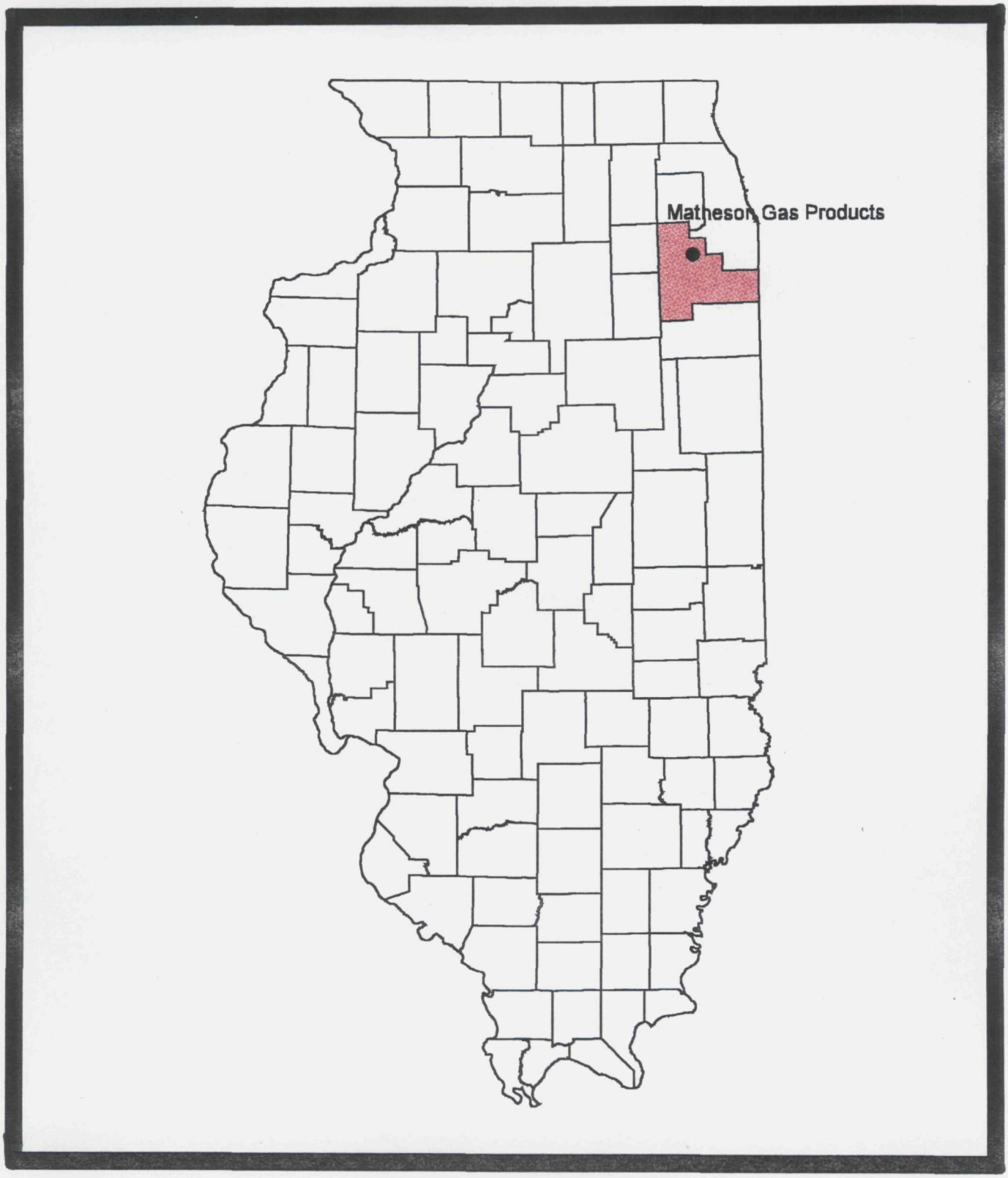


Figure 2-1

Site Location Map

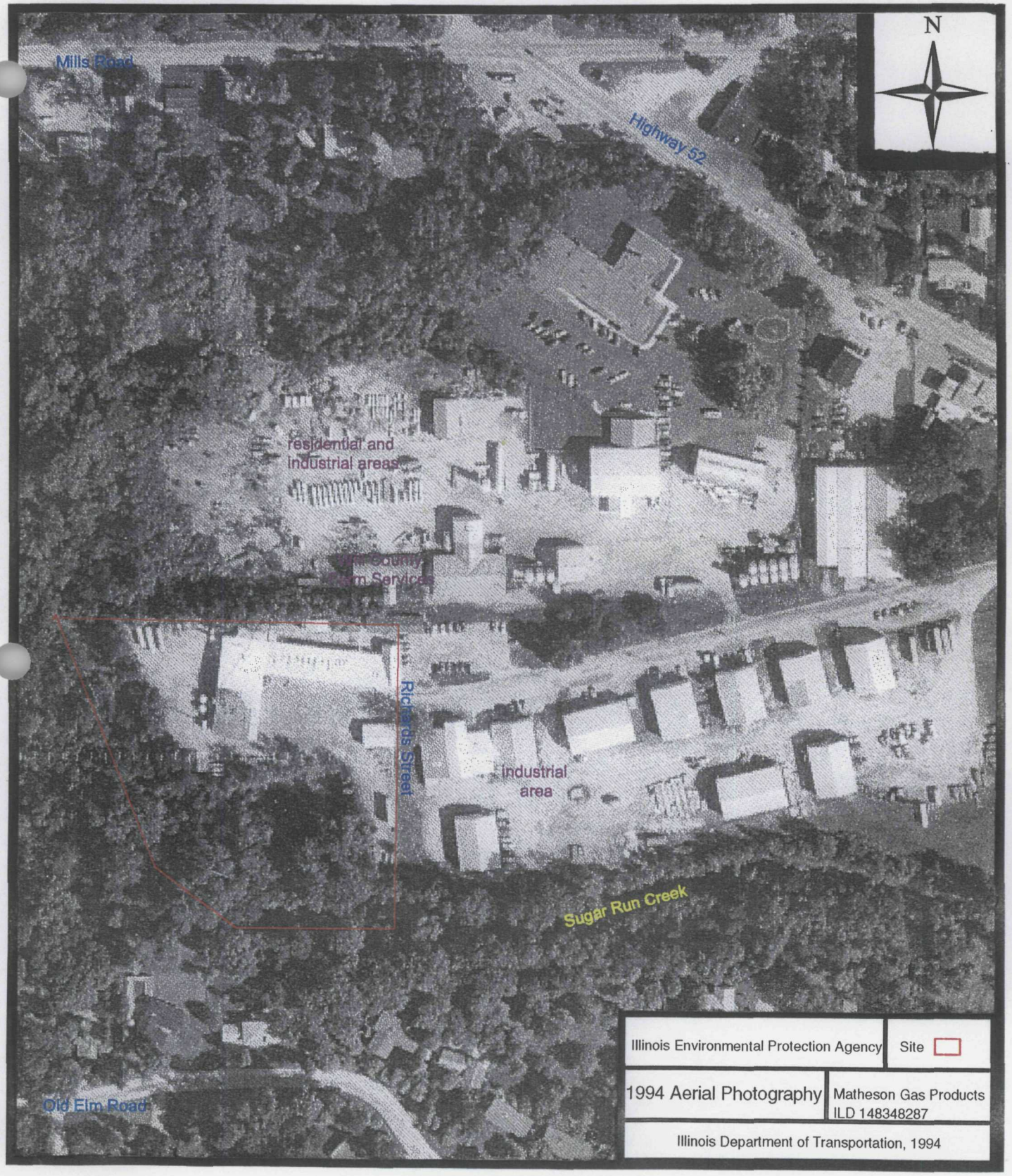


Figure 2-2
Surrounding Area

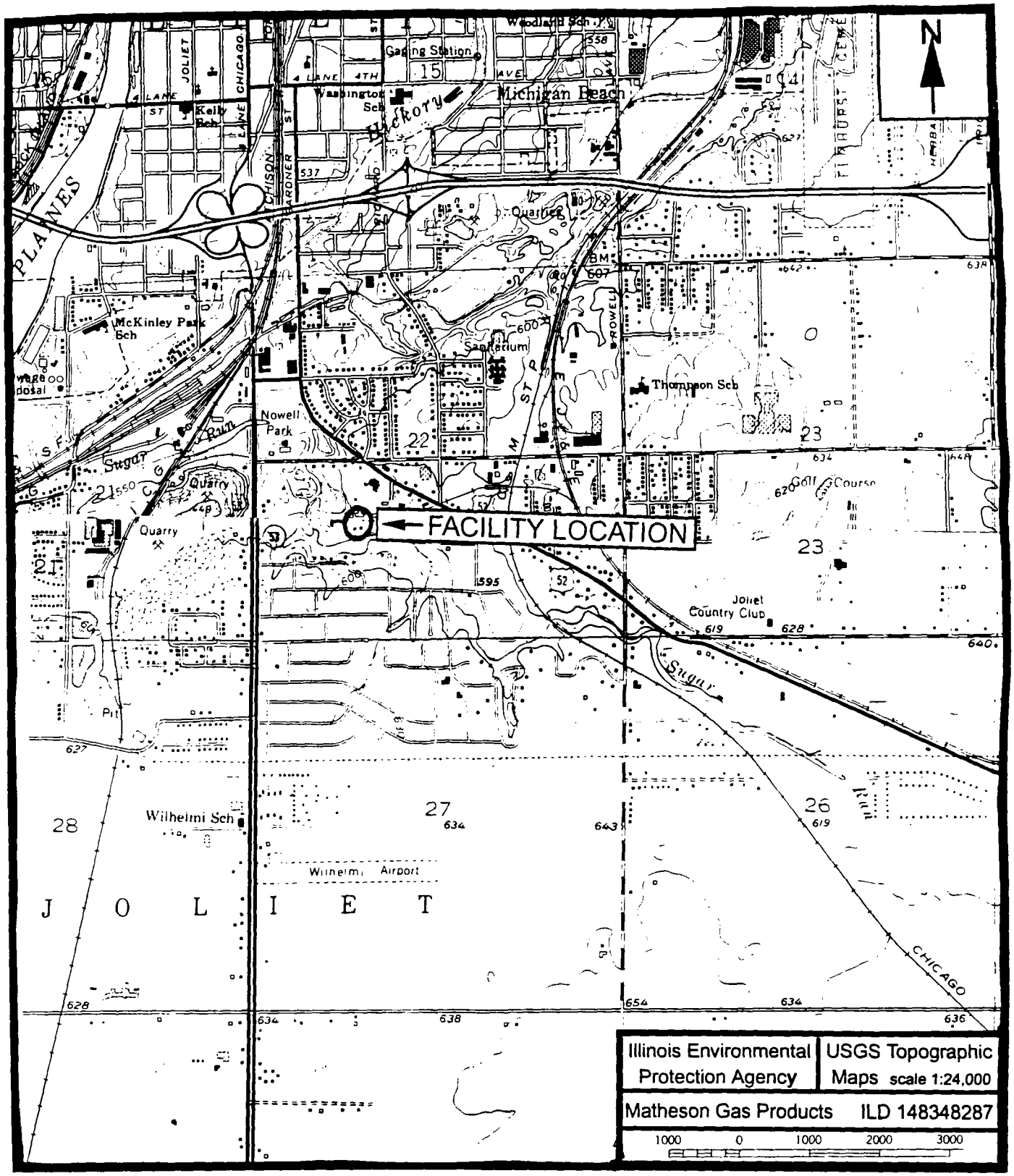


Figure 2-3
Site Topography Map

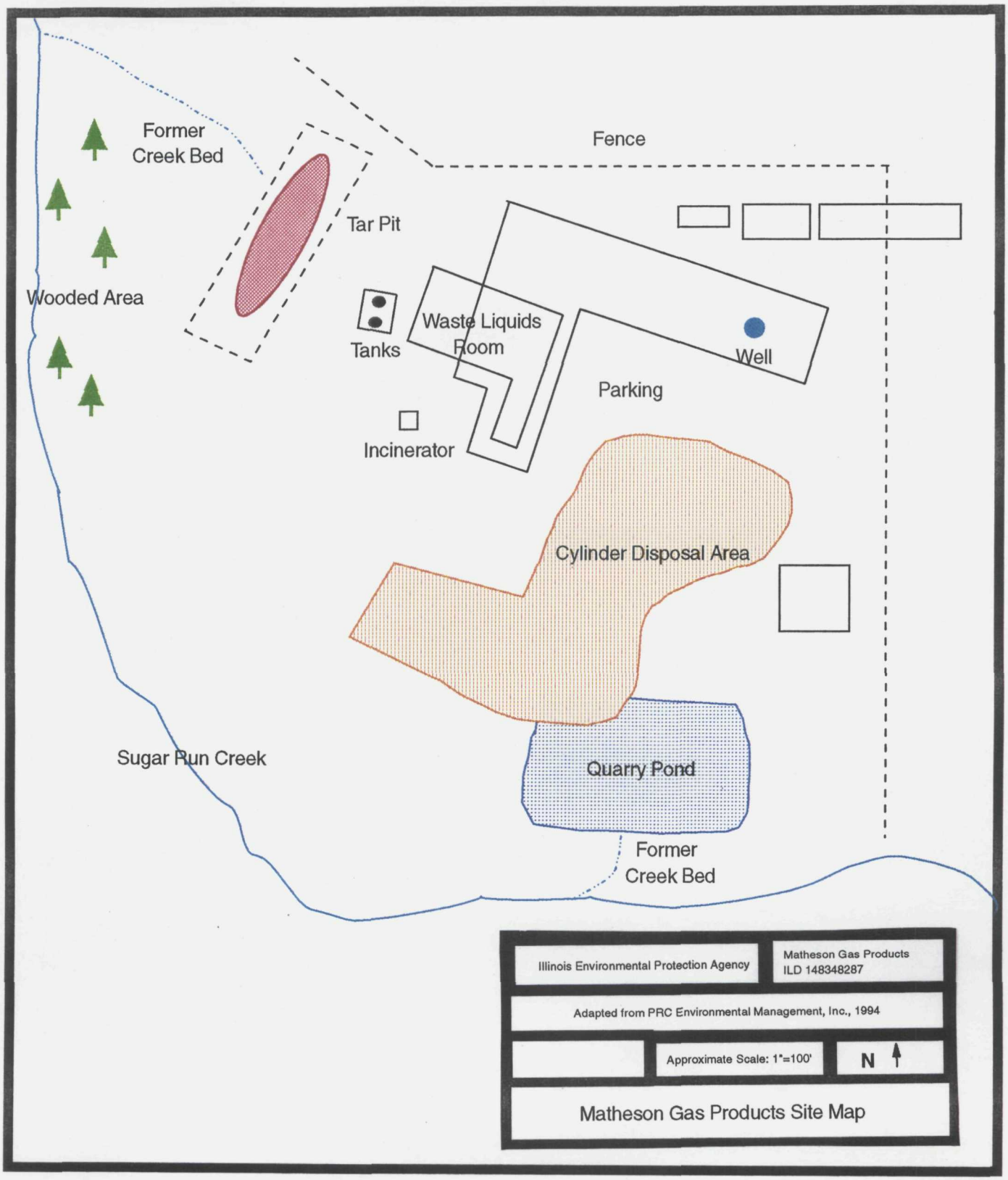


Figure 2-4

Matheson Gas Products Site Map

areas beyond. The site is bordered by wooded areas and Sugar Run Creek to the immediate south and west of the site. Beyond Sugar Run Creek to the south and west are residential areas. The site is bordered on the east by Richards Street beyond which are additional industrial areas.

2.2 SITE OPERATIONS

Matheson Gas is a facility that distributes high purity gases to universities and research facilities. There are more than 100 gases present on-site. The gases are repackaged in different sized cylinders, per customer need and specification. The cylinders are rented to the customers, along with any associated gas handling equipment. When the cylinders are returned to Matheson Gas Products, the cylinders may contain from 1 to 10 percent of a remnant gas.

Matheson Gas generates a variety of wastes as a result of site operations. These include: remnant gas, scrubber effluent waste, wastewater, spent filters, and scrap cylinders. The remnant gas is removed from the returned cylinders under vacuum. The portion of the remnant gas that can be neutralized is injected into an acidic or caustic solution which is then trickled through the scrubber tower. The resultant scrubber effluent waste is piped into the waste liquids room for reuse. When the scrubber effluent is no longer effective, it is transferred to one of the two 5,000 gallon storage tanks located on the western portion of the property. This waste is transported off site as a special waste. Approximately 15,000 gallons of scrubber effluent waste are produced each year.

Remnant gas that is hydrocarbon-based is incinerated on site in a thermal oxidizer under an operating air permit. This incinerator was installed in 1992. Before 1992, the hydrocarbon-

based remnant gas was transported in cylinders to other Matheson Gas facilities for incineration.

Wastewater is generated from cylinder washing operations, cylinder hydrostatic testing, and noncontact cooling water. The cylinder washing and hydrostatic testing waters are filtered in the liquid waste room to remove iron solids. Spent filters are discarded into a dumpster along with general refuse and then taken off site to a landfill. This water is combined with cooling water before it is discharged into the quarry pond. Approximately 800 gallons of wastewater are discharged each day under a National Pollution Discharge Elimination System (NPDES) permit.

After the cylinders are free of gas and cleaned, a hydrostatic test is performed on the cylinders. Cylinders that fail the hydrostatic test are rendered useless and are placed in a scrap cylinder accumulation area. The scrap cylinders are sold to scrap metal recyclers. During the 1960s, scrap cylinders were buried on site west and north of the quarry pond. A parking lot now covers part of this disposal area. Scrap cylinders may also have been disposed of in the quarry pond. These scrap cylinders may have contained phosgene, chlorine, hydrogen sulfide, and nitrogen dioxide.

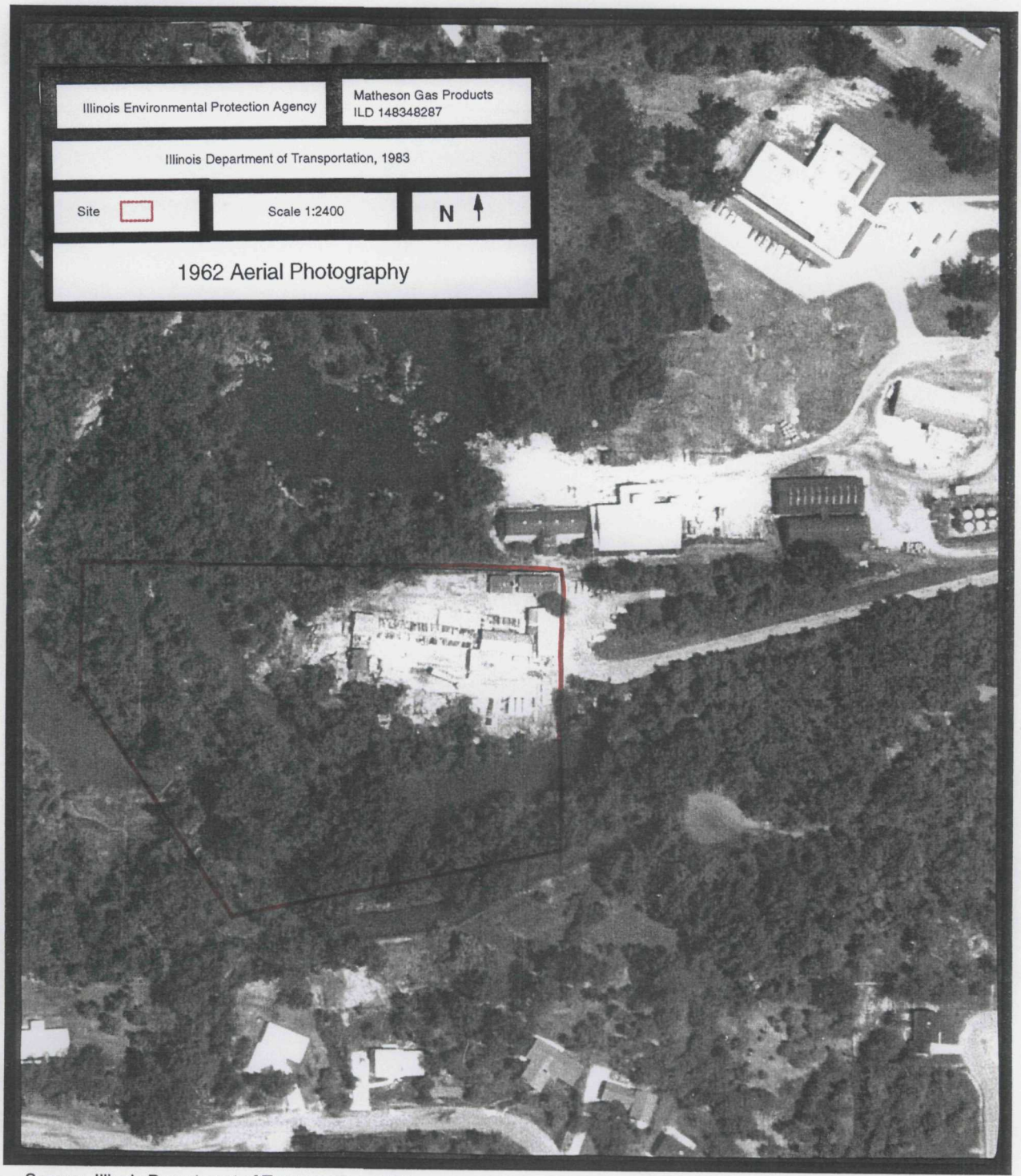
2.3 SITE HISTORY

Activities began at the site in 1891 when Kirkpatrick, Howk, Masey Stone Company used the site for their quarry operations. The quarrying lasted until 1911 when the property was sold to the Joliet Oil Refining Company for use as an oil refinery. A 1924 Sanborn Fire Insurance Map illustrates that the Joliet Oil Refining Company was operating at the site. Oil tanks, several stills, two pump houses, and a boiler house was present. During operation of the site as an oil refinery,

waste was deposited on site. Refinery waste was deposited into at least one old quarry pit left remaining from the when the property was used as a quarry. The quarry pond is located on the southeast portion of the site. Another area on site that may contain wastes from refinery operations is the tar pit area. This area is located to the west of the main manufacturing building. This pit contains a viscous petroleum tar-like waste. Adjacent areas also contain the viscous petroleum tar-like waste. Some of these areas were filled over by Matheson Gas to expand operations (refer to Figure 2-5, 2-6, 2-7, and 2-8). A parking lot was built over part of this tar pit area, and in 1991 a petroleum, tar-like substance was noted to be making its way to the surface of the parking lot from below.

The property changed owners but continued to be the location of oil refinery operations until 1946. In 1946. Matheson Gas, then a division of Searle bought the property. On November 19, 1980, Matheson Division Searle Medical Products submitted a Resource Conservation and Recovery Act (RCRA) Part A application to the USEPA for the scrubber waste process. However, the facility amended their Part A application in 1984 to close an associated hazardous waste storage area and obtain generator status. This hazardous waste unit was certified closed on September 17, 1985 by IEPA. On April 27, 1989 the IEPA concurred with the USEPA and Matheson Gas that the scrubber tower was not RCRA regulated and, subsequently withdrew the Matheson Gas Part A on that date.

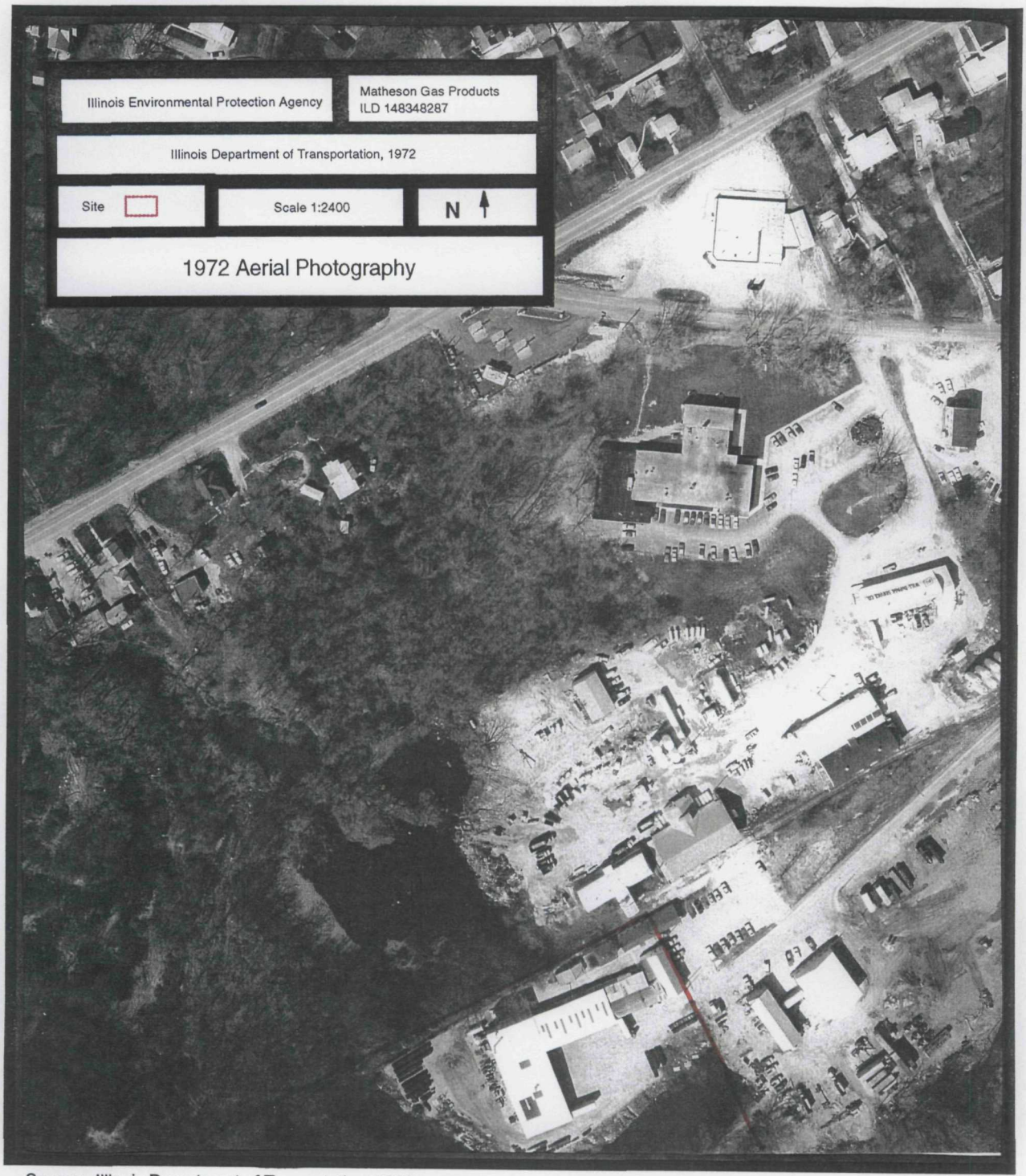
Matheson Gas has other permits that have been issued by the IEPA. In 1984, IEPA approved a permit No. 1981-59-OP to operate two 5,000 gallon tanks for storage of scrubber wastes. In 1993, the IEPA issued an air permit No. 197809AAX to Matheson Gas for pollution control equipment consisting of a scrubber and a dispatching oven. The facility has no documented



Source: Illinois Department of Trnsportation, 1962

Figure 2-5

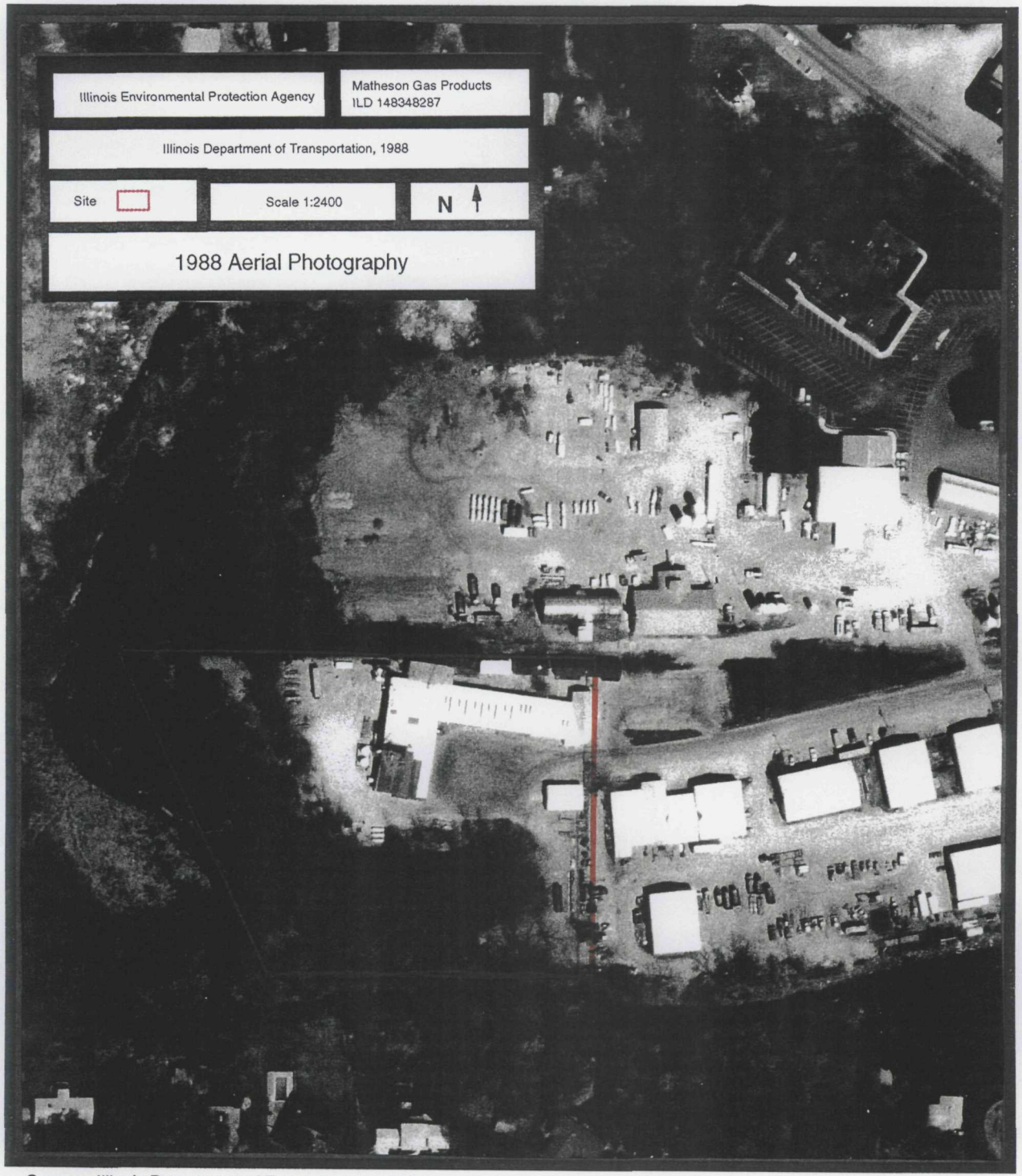
1962 Aerial Photography



Source: Illinois Department of Trnsportation, 1972

Figure 2-6

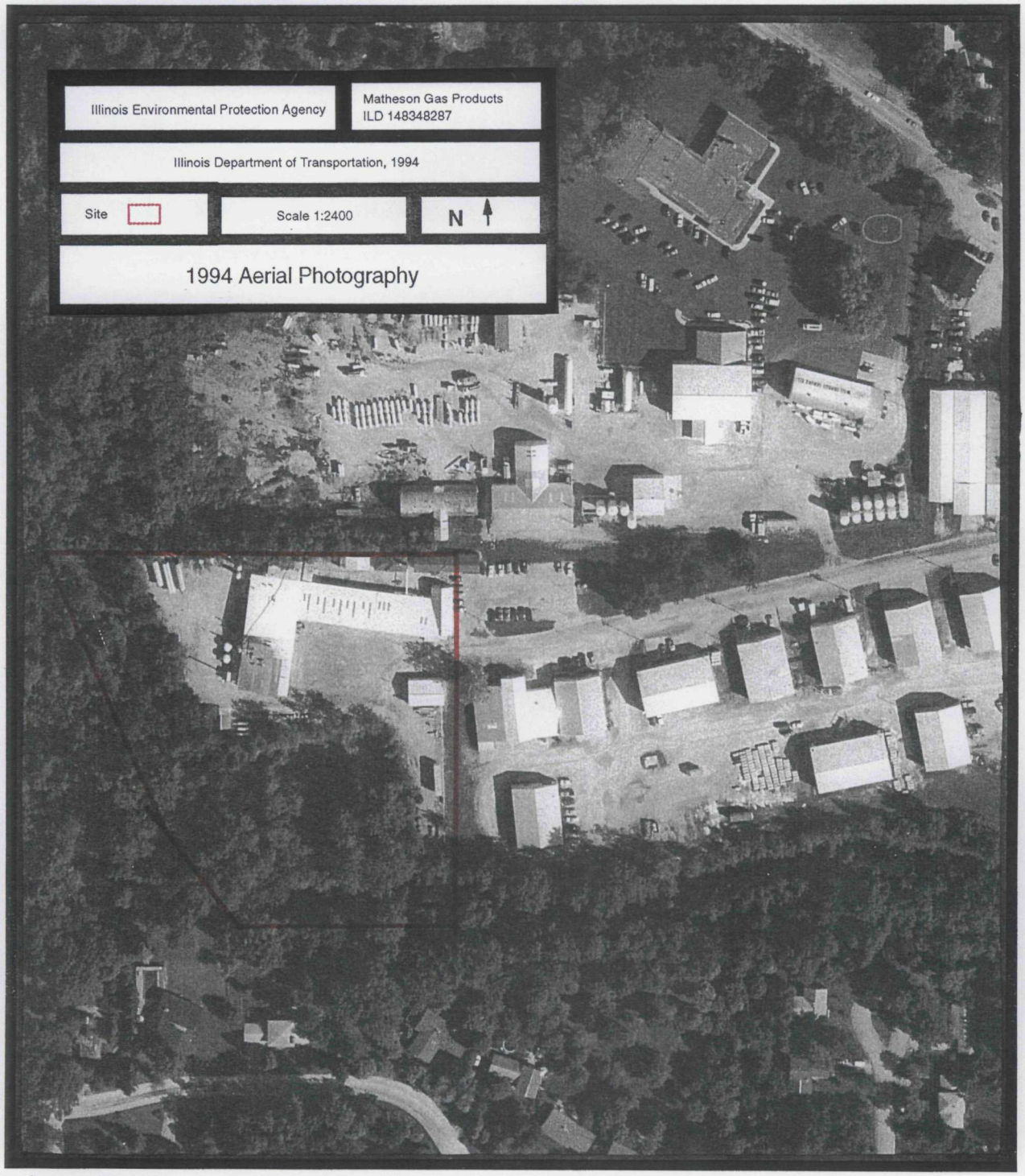
1972 Aerial Photography



Source: Illinois Department of Trnsportation, 1988

Figure 2-7

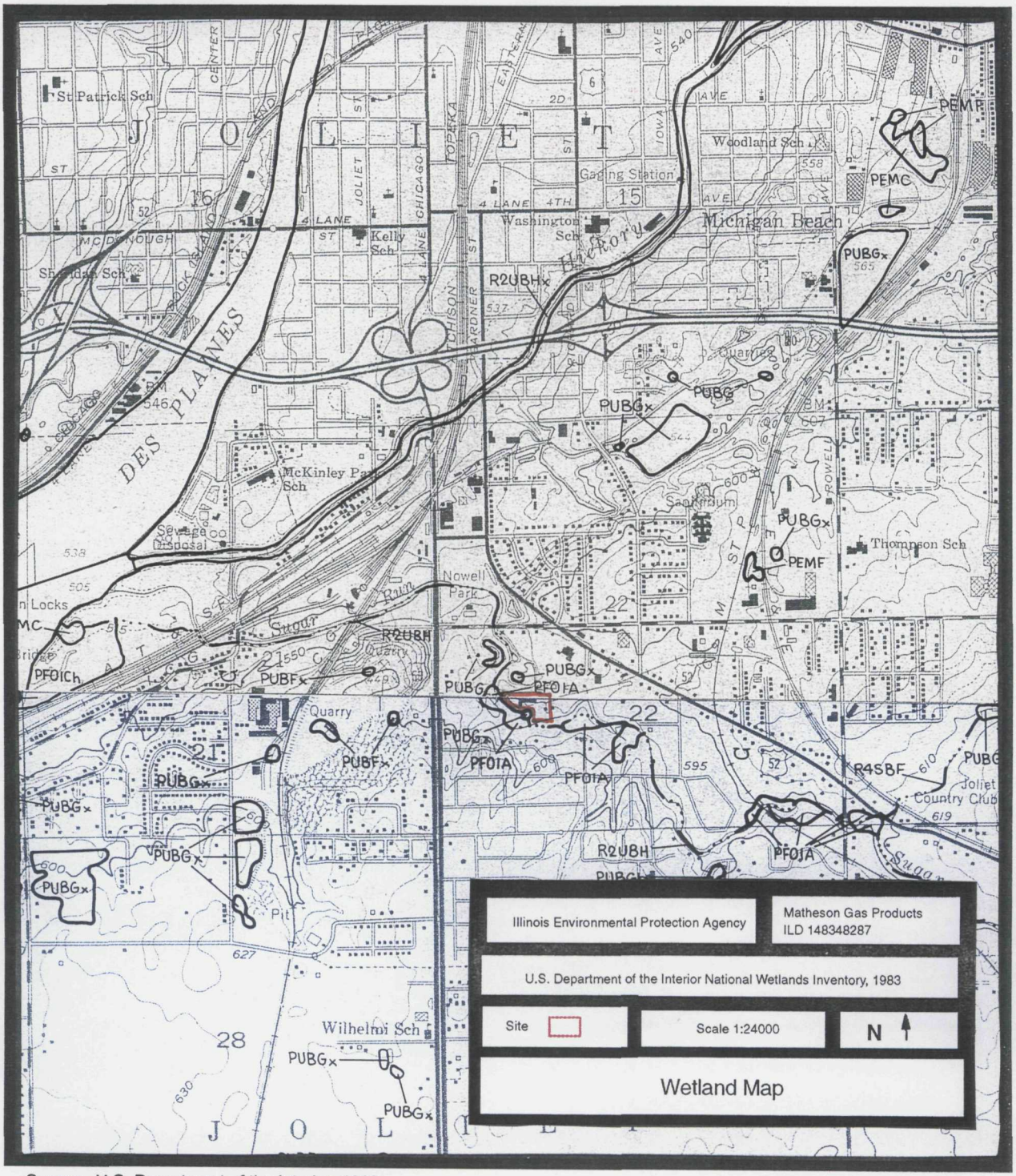
1988 Aerial Photography



Source: Illinois Department of Trnsportation, 1994

Figure 2-8

1994 Aerial Photography



Source: U.S. Department of the Interior, 1983

Figure 2-9

Wetland Map

violations of its air permit. However, the facility has a history of odor complaints from area residents. In 1987, IEPA issued a modified National Pollution Discharge Elimination System (NPDES) permit No. IL0062a618 for noncontact cooling water that is discharged to Sugar Run Creek via the on site quarry pond.

In September 1989, IEPA conducted a Preliminary Assessment at the Matheson Gas facility and recommended further investigation. Therefore, in June 1991, IEPA completed a Screening Site Inspection. During the Screening Site Inspection, three groundwater and nine on-site soil samples were collected. An unidentified semivolatile was detected in the groundwater sample collected from the on site well at an estimated concentration of 1.8 parts per billion (ppb). Samples from an off-site well and a background did not show contamination. The on site soil samples detected the presence of volatiles, semivolatiles, pesticides, PCBs, and inorganics (refer to Table 3-2 and 3-3).

In March 1994 the USEPA obtained a contractor to conduct a Preliminary Assessment/Visual Site Inspection (PA/VSI). This inspection was conducted as a cooperative effort between the RCRA and CERCLA programs. It was conducted to characterize actual or potential releases to the environment from solid waste management units in order to prioritize sites for corrective action. This investigation identified and described several solid waste management units. The investigation also recommended actions for several of the units.

2.4 APPLICABILITY OF OTHER STATUTES

Matheson Gas was previously held under the regulations of RCRA. Matheson Gas filed a Part A permit application with USEPA in 1980 for their scrubber waste process and hazardous waste

storage area. However, in 1981 USEPA determined that gas cylinder handling facilities were not subject to RCRA. In 1989, after the closure of the hazardous waste storage area, the Part A application was withdrawn. Despite the solid waste management units present on site, Matheson Gas is no longer regulated under RCRA.

Currently, available information suggests that the site is not subject to the regulations of other pertinent statutes including the Atomic Energy Act (AEA), the Uranium Mill Tailing Radiation Control Act (UMTRA), or the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

3.0 SITE INSPECTION ACTIVITIES

Prior to the initiation of field activities, a workplan was developed and submitted to the USEPA Region V Offices for review. The field investigation portion of the STEP was conducted on August 22 and 23, 1995. As part of this investigation, the IEPA collected five soil samples, five sediment samples, and three groundwater samples. Samples were collected to determine if Target Compound List (TCL) parameters were present at the site or at potential targets of concern. A copy of the TCL is provided in Appendix B. Analytical summaries are provided in Table 3-2, 3-3. 3-4, and 3-5 and the complete analytical data package is provided in Appendix E. The sample results from the Screening Site Inspection are provided in Appendix D. Figure 3-1 and 3-2 illustrate sample locations. Photographs of the site were taken during sampling; however, because of a problem with the camera, none are available.

3.1 SITE RECONNAISSANCE

In November 1994 Kim Hubbert of the IEPA's CERCLA Site Assessment Program visited the site. The visit consisted of a visual inspection to determine the status of the facility, to identify previous and potential sampling locations, and to identify any health and safety concerns associated with the site.

3.2 SITE REPRESENTATIVE INTERVIEW

In July of 1995 a letter was sent by the IEPA to Matheson Gas Products as notification of the planned CERCLA inspection. During the reconnaissance visit and the field sampling event, Matheson Gas Products representatives were informed of the purpose of collecting samples, the sampling date, and the approximate number and location of samples to be collected.

3.3 SOIL SAMPLING

Five soil samples were collected by IEPA during the STEP. These samples were collected to establish background levels of soil constituents and to assist in determining the character and extent of possible contamination. Figure 3-1 and 3-2 illustrate the location of the samples collected and Table 3-1 provides more detailed information on sample appearance.

Soil sample X102 was collected from the overflow or run-off area leading from the quarry pond into Sugar Run Creek. This sample was collected to determine the presence of contaminants and to determine if contaminants were migrating from the quarry pond and impacting Sugar Run Creek wetlands. Sample X103 and duplicate sample X104 were collected from the intermittent ditch that leads from the tar pit area west toward Sugar Run Creek. Again, this sample was collected to determine if contaminants were migrating from the tar pit area and impacting Sugar Run Creek. Sample X105 was collected at the edge of the tar pit at the point where the intermittent ditch (from which samples X103 and X104 were collected) begins. This sample was collected to determine the presence of contamination.

Sample X101 was collected to serve as a background soil sample. It was collected along Mills Road and Sugar Run Creek. This location was chosen to represent natural conditions, as it is removed from landfill operations, facility runoff, and from other known areas of contamination. According to the Will County Soil Survey, the soil at the site consists of silty loam. Background soil sample X101 was collected from the same soil type as native on-site soils.

3.4 SEDIMENT SAMPLING

Five sediment samples were collected by IEPA during the STEP. These samples were collected to establish background levels of soil constituents and to assist in determining the character and extent of possible contamination. Figure 3-1 and 3-2 illustrate the location of the samples collected and Table 3-1 provides more detailed information on sample appearance.

Sediment sample X202 was collected from Sugar Run Creek at the location where the overflow or run-off from the quarry pond enters the creek. This sample was collected down gradient of sample X102. This sample was collected to determine if contaminants were migrating from the gas cylinder disposal area. Sample X203 was collected from a runoff area adjacent the gas cylinder disposal area. Due to safety precaution, no sample was collected within the actual buried cylinder area. Sample X204 was collected from Sugar Run Creek down gradient from the gas cylinder disposal area. Sample X205 was collected from Sugar Run Creek down gradient from sample X204, X103, and X104. This sample was collected down gradient of the location where the intermittent ditch leading from the tar pit area, where X103 and X104 were collected, enters Sugar Run Creek. This sample was collected to determine if contaminants were migrating from the site and impacting Sugar Run Creek wetlands.

Sample X201 was collected to serve as a background sediment sample. This sample was collected from Sugar Run Creek up gradient of the site. It was collected away from any other potential sources of contamination.

3.5 GROUNDWATER SAMPLING

Three groundwater samples were collected by the IEPA during the STEP. Two groundwater samples were collected from an on site drinking water well, and the third sample was collected from a residential well on Red Bud Drive, which is approximately .5 miles south of the site. Groundwater samples were collected to assist in determining if site operations have adversely impacted local groundwater quality. Figure 3-1 and 3-2 illustrate the location of the samples and Table 3-1 provides sample descriptions and locations.

3.6 KEY SAMPLES

"Key" samples are analytical data obtained during CERCLA investigations that indicate observed contamination and/or meet the Hazard Ranking System (HRS) definition of an observed release. These determinations are based upon USEPA Guidance. Tables 3-4 and 3-5 identify contaminants and concentrations detected during the STEP investigation and the Screening Site Inspection. The complete validated laboratory data package for the samples collected during the STEP investigation can be found in Appendix G. In order to assist in providing a more complete site assessment, site characterization, and description of potential impacts, analytical data collected during this STEP investigation as well as the Screening Site Inspection are considered.

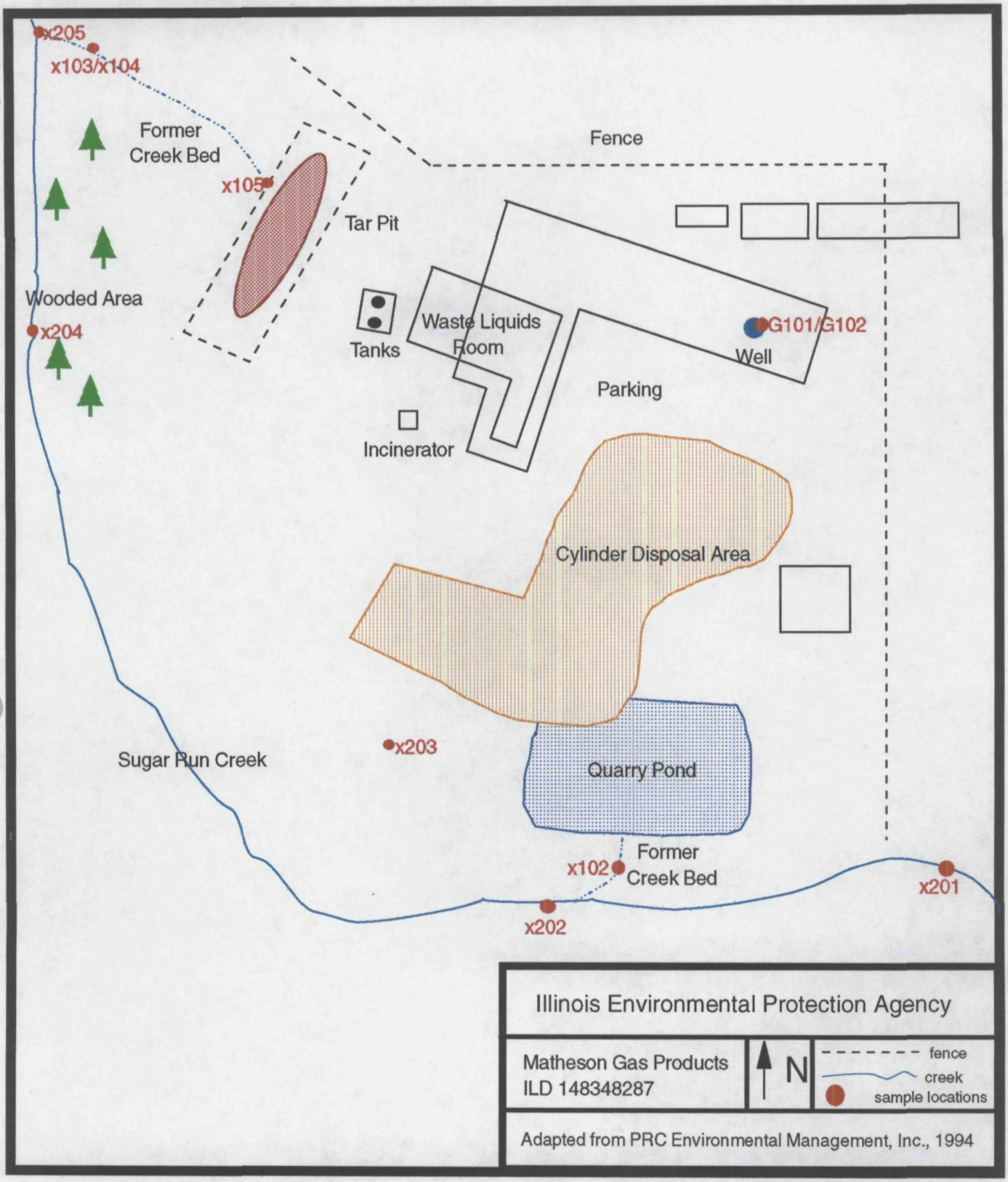


Figure 3-1

On-Site Sample Location Map

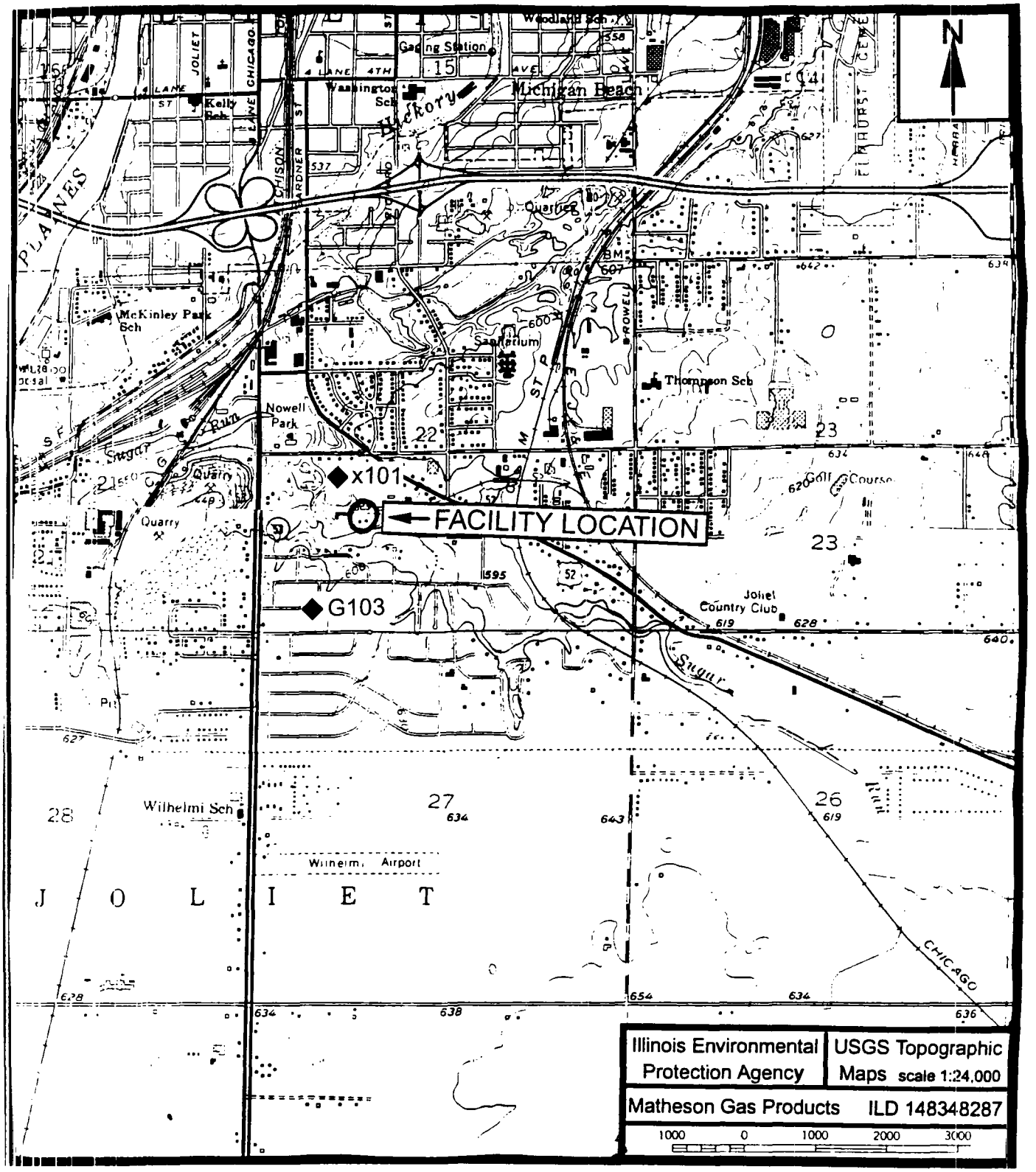


Figure 3-2
Off-Site Sample Location Map

TABLE 3-1 SAMPLE DESCRIPTIONS*

SAMPLE	DEPTH	APPEARANCE	LOCATION
X101	0-4"	Dark brown silty loam	Collected along Mills Road and Sugar Creek, 150 feet south of Mills Road.
X102	0-3"	Dark brown silty loam with gravel	Collected from 8 feet south of the quarry pond.
X103/X104	0-4"	Dark brown silty loam	Collected from the former dry creek bed, approximately 10 feet east of X205.
X105	0-3"	Dark brown clay-like loam	Collected from the former dry creek bed at the NW corner of the tar pit, approximately 25 feet N of NW tar pit fence corner.
X201	0-3"	Dark to medium brown silt with some coarse-grained sand	Collected from the S bank of Sugar Run Creek at a location 60 feet southeast of the Matheson Gas property line (SE corner of lot).
X202	0-3"	Dark brown to black, silty with sand	Collected from Sugar Run Creek.
X203	0-2"	Dark brown, silty layer above a clay layer	Collected from the buried cylinder area 10 feet west of the posting sign.
X204	0-3"	Dark brown, silty with sand	Collected from Sugar Run Creek approximately 4 feet south of a beaver dam.
X205	0-3"	Black, silty with sand	Collected at the confluence of the dry former creek bed and Sugar Run Creek.
G101/G102	106'	Clear with a minor metal-like and sweter smell	Collected from the on-site drinking water well.
G103	150'	Clear and odorless	Collected from a residential well located S of the site.

* For sample descriptions of samples collected during the Screening Site Inspection refer to the "CERCLA Screening Site Inspection Report."

TABLE 3-2 SOIL/SEDIMENT SAMPLE SUMMARY

1991 Screening Site Inspection Results

COMPOUNDS	SAMPLE POINTS								
EPA Sample ID	X101	X102	X103	X104	X105	X106	X107	X108	X109
Lab Organic Sample ID									
Lab Inorganic Sample ID									
Description	background	quarry pond	soil	soil	soil	tar pit	tar pit	quarry pond	quarry pond
VOLATILES (ppb)									
Acetone	---	16	10 J	140	1500	490 J	---	170	80
Methylene Chloride	---	---	---	4 J	---	260 J	---	---	---
Chloroform	---	---	---	---	---	---	---	---	8 J
Toluene	---	---	---	---	2200	1900	3500	---	12
Ethylbenzene	---	---	---	---	2200	1400	3200	---	10
Xylene	---	---	---	---	11000	10000	14000	---	20
Benzene	---	---	---	---	---	2800	---	---	4 J
Carbon Disulfide	---	---	---	---	---	---	---	---	4 J
1,1-Dichloroethane	---	---	---	---	---	---	---	---	4 J
SEMIVOLATILES (ppb)									
Phenol	---	---	---	---	6800 J	---	---	---	490 J
2,4-Dimethylphenol	---	---	---	---	---	---	---	---	---
Acenaphthene	---	280 J	---	---	---	---	---	---	---
Dibenzofuran	---	76 J	---	---	---	---	---	---	---
Fluoranthene	---	---	---	---	---	---	---	---	---
Pyrene	---	---	---	---	---	---	---	---	---
Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
Chrysene	---	---	---	5400 J	---	44000 J	---	---	---
Bis(2-ethylhexyl)phthalate	---	---	---	8100 J	---	---	---	---	110000
Di-n-butylphthalate	---	---	---	---	---	---	---	---	---
Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
Dibenzo(a,h)anthracene	---	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
Naphthalene	---	---	---	---	14000	30000 J	13000 J	---	---
2-Methylnaphthalene	---	---	---	---	51000	140000 J	39000 J	---	---
Carbazole	---	---	---	---	---	---	---	---	---
Diethylphthalate	---	---	---	---	---	---	---	---	---
Phenanthrene	---	---	---	---	48000	110000	50000 J	---	---
Anthracene	---	---	---	---	---	---	---	---	---
Fluorene	---	---	---	---	---	27000 J	6600 J	---	---
Di-n-butylphthalate	---	---	---	---	---	---	---	---	1800
Benzoic Acid	---	---	660 J	---	---	---	---	---	---
Dimethylphthalate	---	---	---	---	---	---	---	---	390 J
Hexachlorobenzene	---	---	---	---	---	---	---	---	230 J
Butylbenzylphthalate	---	---	---	---	---	---	---	---	420 J
4-Methylphenol	---	---	---	---	---	---	---	---	210 J
Aroclor-1254	---	---	---	---	---	---	---	---	2800
Aroclor-1260	---	---	---	---	---	---	---	---	3200
PESTICIDES (ppb)									
alpha-BHC	---	---	---	---	---	---	---	---	---
beta-BHC	---	---	---	---	---	---	---	---	---
gamma-BHC	---	---	---	---	---	---	---	---	---
Heptachlor	---	---	---	---	---	---	---	---	---
Aldrin	---	---	---	---	---	---	---	---	---
Heptachlor epoxide	---	---	---	---	---	---	---	---	---
Endosulfan I	---	---	---	---	---	---	---	---	---
Dieldrin	---	---	---	---	---	---	---	---	---
Endrin	---	---	---	---	---	---	---	---	---
Endosulfan II	---	---	---	---	---	---	---	---	---
4,4-DDE	---	---	---	---	---	---	---	---	---
4,4-DDT	---	---	---	---	---	270	---	---	---
4,4-DDD	---	---	---	---	---	---	---	---	---
Endosulfan sulfate	---	---	---	---	---	---	---	---	---
Methoxychlor	---	---	---	---	---	---	---	---	---
Endrin aldehyde	---	---	---	---	---	---	---	---	---
Endrin ketone	---	---	---	---	---	---	---	---	---
alpha-Chlordane	---	---	---	---	---	---	---	---	---
gamma-Chlordane	---	---	---	---	---	---	---	---	---
INORGANICS (ppm)									
Antimony	---	73.9	34.8	---	36.3	---	---	63.5	58.6
Arsenic	7.9	---	---	---	---	---	---	27.7	---
Beryllium	---	---	---	---	---	---	---	---	---
Cadmium	---	---	---	212	---	---	---	---	---
Chromium	18.7	---	---	68	---	---	---	---	75
Copper	26.1	---	---	81	---	---	---	---	192
Lead	26.5	---	---	316	95	197	---	---	378
Magnesium	12000	60700	---	---	---	---	---	55700	45500
Manganese	569	---	---	---	---	---	---	---	2320
Mercury	.12	---	---	.53	---	---	---	---	---
Nickel	---	---	---	---	---	---	---	---	---
Selenium	---	---	---	---	---	---	---	---	---
Silver	---	3.5	2.1	---	---	---	---	4.0	3.5
Vanadium	---	---	---	---	---	---	---	---	---
Zinc	100	---	---	321	---	---	---	---	---

--- Indicates the compound was analyzed for, but not detected.

J Indicates an estimated value.

D Indicates compounds at a secondary dilution.

P Indicates a pesticide/Aroclor compound when there is a greater than 25% difference for the detected concentrations between the two columns, the lower of the two values are reported.

B Indicates the compound was detected in the associated blank.

X Qualifier reserved for laboratory use, does not affect the validity of the data.

TABLE 3-2 SOIL/SEDIMENT SAMPLE SUMMARY CONTINUED

1995 Site Team Evaluation Prioritization Results

COMPOUNDS	SAMPLE POINTS									
IEPA Sample ID	X101	X102	X103	X104	X105	X201	X202	X203	X204	X205
Lab Organic Sample ID	EAPK9	EAPL0	EAPL1	EAPL2	EAPL3	EAPL4	EAPL5	EAPL6	EAPL7	EAPL8
Lab Inorganic Sample ID	MEAET7	MEAET8	MEAET9	MEAEL8	MEAEL9	MEAEM0	MEAEL5	MEAEL6	MEAEL7	MEAEL2
Description	background	quarry pond	soil	dup X103	soil	background	creek	creek	creek	creek
VOLATILES (ppb)										
Acetone	9 JB	20 B	19 B	10 JB	27 B	80 B	35 B	18 JB	12 JB	250 B
Methylene Chloride	9 JB	8 JB	9 B	11 JB	10 JB	9 JB	8 JB	16 JB	20 B	97 B
Chloroform	---	---	---	---	---	2 J	---	2 J	---	---
Toluene	---	---	---	---	---	---	---	---	---	---
Ethylbenzene	---	---	---	---	---	---	---	---	---	---
Xylene	---	---	---	---	---	---	---	---	---	---
Benzene	---	---	---	---	---	---	---	---	---	---
Carbon Disulfide	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethane	---	---	---	---	---	---	---	---	---	---
SEMIVOLATILES (ppb)										
Phenol	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	---	---	---	---	---	---	---	---	63 J	---
Acenaphthene	---	---	---	---	---	---	---	790 J	---	---
Dibenzofuran	---	---	---	---	---	---	---	---	---	---
Fluoranthene	210 J	7800 DJ	140 J	110 J	57 J	140 J	---	13000	280 J	270 J
Pyrene	260 J	7600 DJ	140 J	140 J	69 J	130 J	---	11000	240 J	240 J
Benzo(a)anthracene	130 J	5500 DJ	77 J	70 J	---	76 J	---	6400	210 J	130 J
Chrysene	140 J	5300 DJ	98 J	88 J	---	90 J	---	5900	320 J	150 J
Bis(2-ethylhexyl)phthalate	54 BJ	41000 DB	82 JB	63 JB	180 BJ	50 JB	---	340000 D	76 JB	74 JB
Di-n-octylphthalate	---	---	---	---	---	---	---	1500 J	---	---
Benzo(b)fluoranthene	200 XJ	8100 DX	160 JX	140 XJ	61 XJ	130 XJ	---	11000 X	330 JX	200 JX
Benzo(k)fluoranthene	190 XJ	9100 DX	150 JX	130 XJ	59 XJ	140 XJ	---	12000 X	380 JX	190 JX
Benzo(a)pyrene	110 J	3000	89 J	81 J	---	73 J	---	5400	180 J	99 J
Indeno(1,2,3-cd)pyrene	70 J	1400	---	---	---	54 J	---	1500 J	140 J	---
Dibenzo(a,h)anthracene	---	310 J	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	56 J	560	---	---	---	---	---	1200 J	93 J	---
Naphthalene	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	---	---	---	---	---	---	---	---	---	---
Carbazole	---	210 J	---	---	---	---	---	480 J	---	---
Diethylphthalate	---	---	---	---	---	---	---	610 J	---	---
Phenanthrene	140 J	1800	48 J	---	---	52 J	---	7700	---	100 J
Anthracene	---	670	---	---	---	---	---	2400 J	---	---
Fluorene	---	210 J	410 J	---	---	---	---	930 J	---	---
Di-n-butylphthalate	450	370 J	---	---	---	---	---	6300	570	200 J
Benzoic Acid	---	---	---	---	---	---	---	---	---	---
Dimethylphthalate	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	---	---	---	---	---	---	---	---	---	---
Butylbenzylphthalate	---	---	---	---	---	---	---	---	---	---
4-Methylphenol	---	---	---	---	---	---	---	---	---	---
Aroclor-1254	---	---	---	---	---	---	---	---	---	---
Aroclor-1260	---	32 J	29 J	---	---	---	24 J	5000 C	---	58 J
PESTICIDES (ppb)										
alpha-BHC	066 JP	---	---	---	---	---	---	2.1 JP	5.4 P	---
beta-BHC	---	---	---	---	---	---	---	7.9 JPD	---	---
gamma-BHC	---	---	---	---	---	---	---	1.4 JPD	---	---
Heptachlor	---	---	---	---	---	---	.62 JP	1.6 JPD	---	---
Aldrin	.87 JP	.11 JP	.18 JP	.18 JP	.2 JP	.13 JP	---	2.6 JPD	---	---
Heptachlor epoxide	2.8 P	.51 JP	.56 JP	.42 JP	.35 JP	.42 JP	---	---	---	---
Endosulfan I	.14 JP	---	---	---	---	---	---	---	---	---
Dieldrin	---	2.8 JP	4.9 P	4.9 P	5.0 P	3 JP	.63 JP	5.5 JPD	3.6 J	2.2 JP
Endrin	.56 JP	---	---	---	---	---	---	---	---	---
Endosulfan II	---	---	---	.18 JP	---	---	---	---	---	---
4,4-DDE	9.7	2.5 J	4.8 P	4.8 P	4.2 JP	3.2 JP	---	67 PD	3.2 J	3.5 JP
4,4-DDT	8.6	---	2.9 JP	3.5 JP	---	2 JP	.19 JP	130 D	2.4 JP	---
4,4-DDD	.88 JP	---	---	---	---	2.6 JP	---	---	---	---
Endosulfan sulfate	---	---	---	---	---	---	---	2.2 JP	---	---
Methoxychlor	---	3.9 JPB	2.3 JBP	1.9 JPB	5.9 JPB	4.8 JPB	4 JB	240 PB	---	4.3 J
Endrin aldehyde	---	---	---	---	.5 JP	---	.43 J	270 PD	---	---
Endrin ketone	15 JP	---	---	---	---	---	---	55 PD	---	---
alpha-Chlordane	---	.89 JP	1.9 JP	1.2 JP	1.8 J	2.3 J	---	42	---	1.4 JP
gamma-Chlordane	.62 JP	.30 JP	.72 JP	.70 JP	.98 JP	1.1 JP	---	33 P	1.3 JP	1.2 JP
INORGANICS (ppm)										
Antimony	---	---	---	---	---	---	---	3.4	---	---
Arsenic	8.8	---	---	---	---	---	---	---	---	---
Beryllium	.65	---	---	---	---	---	.45	---	---	---
Cadmium	.78	---	---	---	---	---	---	14.6	---	---
Chromium	11.2	---	---	---	---	13	---	473	---	---
Copper	25.1	---	---	---	---	22.9 J	---	252 J	---	---
Lead	90.9	---	---	---	---	25.2	---	1410	---	---
Magnesium	36000	---	---	---	---	---	---	---	---	---
Manganese	633	---	---	---	---	---	---	---	---	---
Mercury	---	---	---	---	---	---	---	.43	---	---
Nickel	13.8	---	---	---	---	18.3	---	55.8	---	---
Selenium	---	---	---	---	---	---	---	---	---	---
Silver	.40	---	---	---	---	---	---	---	---	---
Vanadium	18.5	---	---	---	---	---	---	---	---	---
Zinc	169	---	---	---	---	93.6	---	694	---	---

--- Indicates the compound was analyzed for, but not detected.

J Indicates an estimated value.

D Indicates compounds at a secondary dilution.

P Indicates a pesticide/Aroclor compound when there is a greater than 25% difference for the detected concentrations between the two columns, the lower of the two values are reported.

B Indicates the compound was detected in the associated blank.

X A qualifier reserved for laboratory use, does not affect the validity of the data.

TABLE 3-3 GROUNDWATER SAMPLE SUMMARY

	1991 Screening Site Inspection Results				1995 Site Team Evaluation Prioritization Results		
COMPOUNDS							
IEPA Sample ID Lab Organic Sample ID Lab Inorganic Sample ID Description	G201 on-site	G202 residence	G203 subdivision		G101 EAPL 9 MEADY7 on-site	G102 EAPM0 MEADY 8 dup G101	G103 EAAZ8 MEADY9 residence
VOLATILES (ppb)							
Methylene Chloride	----	----	----		----	----	1 JB
SEMIVOLATILES (ppb)							
Bis (2-ethylhexyl)phthalate	----	----	----		38	6 JB	5 JB
Diethyl phthalate	----	----	----		----	----	1 J
Di-n-butylphthalate	----	----	----		1 J	----	1 JB
INORGANICS (ppm)							
Barium	----	----	----		51.7	47.5	43.1
Copper	----	----	----		8.4	12.5	26.2
Magnesium	----	----	----		59700	54200	63300
Selenium	---	28	----		----	----	----
Silver	----	----	----		1.3	1.1	1.5
Vanadium	----	73.2	----		----	----	----
Zinc	----	----	----		117	151	60

--- Indicates the compound was analyzed for, but not detected.

J Indicates an estimated value.

E Indicates compounds at a secondary dilution.

P Indicates a pesticide/Aroclor compound when there is a greater than 25% difference for the detected concentrations between the two columns, the lower of the two values are reported.

B Indicates the compound was detected in the associated blank.

K A qualifier reserved for laboratory use, does not affect the validity of the data.

TABLE 3-4 KEY SOIL/SEDIMENT SAMPLE SUMMARY

1991 Screening Site Inspection Results

COMPOUNDS	SAMPLE POINTS								
EPA Sample ID	X101	X102	X103	X104	X105	X106	X107	X108	X109
Lab Organic Sample ID									
Lab Inorganic Sample ID									
Description	background	quarry pond	soil	soil	soil	tar pit	tar pit	quarry pond	quarry pond
VOLATILES (ppb)									
Acetone	---	16	---	140	1500	---	---	170	80
Methylene Chloride	---	---	---	---	---	---	---	---	---
Toluene	---	---	---	---	2200	1900	3500	---	12
Ethylbenzene	---	---	---	---	2200	1400	3200	---	10
Xylene	---	---	---	---	11000	10000	14000	---	20
Benzene	---	---	---	---	---	2800	---	---	---
SEMIVOLATILES (ppb)									
Phenol	---	---	---	---	6800 J	---	---	---	---
Fluoranthene	---	---	---	---	---	---	---	---	---
Pyrene	---	---	---	---	---	---	---	---	---
Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
Chrysene	---	---	---	5400 J	---	44000 J	---	---	---
Bis(2-ethylhexyl)phthalate	---	---	---	8100 J	---	---	---	---	110000
Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
Naphthalene	---	---	---	---	14000	30000 J	13000 J	---	---
2-Methylnaphthalene	---	---	---	---	51000	140000 J	39000 J	---	---
Phenanthrene	---	---	---	---	48000	110000	50000 J	---	---
Anthracene	---	---	---	---	---	---	---	---	---
Di-n-butylphthalate	---	---	---	---	---	---	---	---	1800
Aroclor-1254	---	---	---	---	---	---	---	---	2800
Aroclor-1260	---	---	---	---	---	---	---	---	3200
PESTICIDES (ppb)									
Dieldrin	---	---	---	---	---	---	---	---	---
4,4-DDE	---	---	---	---	---	---	---	---	---
4,4-DDT	---	---	---	---	---	270	---	---	---
Methoxychlor	---	---	---	---	---	---	---	---	---
Endrin aldehyde	---	---	---	---	---	---	---	---	---
Endrin ketone	---	---	---	---	---	---	---	---	---
alpha-Chlordane	---	---	---	---	---	---	---	---	---
gamma-Chlordane	---	---	---	---	---	---	---	---	---
INORGANICS (ppm)									
Antimony	---	73.9	34.8	---	36.3	---	---	63.5	58.6
Arsenic	7.9	---	---	---	---	---	---	27.7	---
Cadmium	---	---	---	212	---	---	---	---	---
Chromium	18.7	---	---	68	---	---	---	---	75
Copper	26.1	---	---	81	---	---	---	---	192
Lead	26.5	---	---	318	95	197	---	---	378
Magnesium	12000	60700	---	---	---	---	---	55700	45500
Manganese	569	---	---	---	---	---	---	---	2320
Mercury	12	---	---	.53	---	---	---	---	---
Nickel	---	---	---	---	---	---	---	---	---
Silver	---	3.5	2.1	---	---	---	---	4.0	3.5
Vanadium	---	---	---	---	---	---	---	---	---
Zinc	100	---	---	321	---	---	---	---	---

--- indicates the compound was analyzed for, but not detected at a significant level or attributable to site operations.

J Indicates an estimated value.

D Indicates compounds in a secondary dilution.

P Indicates a pesticide/Aroclor compound when there is a greater than 25% difference for the detected concentrations between the two columns, the lower of the two values are reported.

B Indicates the compound was detected in the associated blank.

X A qualifier reserved for laboratory use, does not affect the validity of the data.

TABLE 3-4 KEY SOIL/SEDIMENT SAMPLE SUMMARY CONTINUED

1995 Site Team Evaluation Prioritization Results

COMPOUNDS	SAMPLE POINTS									
IEA Sample ID	X101	X102	X103	X104	X105	X201	X202	X203	X204	X205
Lab Organic Sample ID	EAPK9	EAPL0	EAPL1	EAPL2	EAPL3	EAPL4	EAPL5	EAPL6	EAPL7	EAPL8
Lab Inorganic Sample ID	MEAET7	MEAET8	MEAET9	MEAEL8	MEAEL9	MEAEM0	MEAEL5	MEAEL6	MEAEL7	MEAEL2
Description	background	quarry pond	soil	dup X103	soil	background	creek	creek	creek	creek
VOLATILES (ppb)										
Acetone	9 JB	—	—	—	—	80 B	—	—	—	250 B
Methylene Chloride	9 JB	—	—	—	—	9 JB	—	—	—	97 B
Toluene	—	—	—	—	—	—	—	—	—	—
Ethylbenzene	—	—	—	—	—	—	—	—	—	—
Xylene	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—
SEMIVOLATILES (ppb)										
Phenol	—	—	—	—	—	—	—	—	—	—
Fluoranthene	210 J	7800 DJ	—	—	—	140 J	—	13000	—	—
Pyrene	260 J	7600 DJ	—	—	—	130 J	—	11000	—	—
Benzo(a)anthracene	130 J	5500 DJ	—	—	—	76 J	—	6400	—	—
Chrysene	140 J	5300 DJ	—	—	—	90 J	—	5900	—	—
Bis(2-ethylhexyl)phthalate	54 BJ	41000 DB	—	—	—	50 JB	—	340000 D	—	—
Benzo(b)fluoranthene	200 XJ	8100 DX	—	—	—	130 XJ	—	11000 X	—	—
Benzo(k)fluoranthene	190 XJ	9100 DX	—	—	—	140 XJ	—	12000 X	—	—
Benzo(a)pyrene	110 J	3000	—	—	—	73 J	—	5400	—	—
Indeno(1,2,3-cd)pyrene	70 J	1400	—	—	—	54 J	—	—	—	—
Benzo(g,h,i)perylene	56 J	560	—	—	—	—	—	—	—	—
Naphthalene	—	—	—	—	—	—	—	—	—	—
2-Methylnaphthalene	—	—	—	—	—	—	—	—	—	—
Phenanthrene	140 J	1800	—	—	—	52 J	—	7700	—	—
Anthracene	—	670	—	—	—	—	—	—	—	—
Di-n-butylphthalate	450	—	—	—	—	—	—	6300	570	—
Aroclor-1254	—	—	—	—	—	—	—	—	—	—
Aroclor-1260	—	—	—	—	—	—	—	5000 C	—	—
PESTICIDES (ppb)										
Dieldrin	—	—	4.9 P	4.9 P	5.0 P	3 JP	—	—	—	—
4,4'-DDE	9.7	—	—	—	—	3.2 JP	—	67 PD	—	—
4,4'-DDT	8.6	—	—	—	—	—	—	130 D	—	—
Endosulfan I	—	—	—	—	—	4.8 JPB	—	240 PB	—	—
Endosulfan II	—	—	—	—	—	—	—	270 PD	—	—
Endrin ketone	15 JP	—	—	—	—	—	—	55 PD	—	—
alpha-Chlordane	—	—	—	—	—	2.3 J	—	42	—	—
gamma-Chlordane	62 JP	—	—	—	—	1.1 JP	—	33 P	—	—
INORGANICS (ppm)										
Antimony	—	—	—	—	—	—	—	3.4	—	—
Arsenic	8.8	—	—	—	—	—	—	—	—	—
Cadmium	78	—	—	—	—	—	—	14.6	—	—
Chromium	11.2	—	—	—	—	13	—	473	—	—
Copper	25.1	—	—	—	—	22.9 J	—	252 J	—	—
Lead	90.9	—	—	—	—	25.2	—	1410	—	—
Magnesium	36000	—	—	—	—	—	—	—	—	—
Manganese	633	—	—	—	—	—	—	—	—	—
Mercury	—	—	—	—	—	—	—	.43	—	—
Nickel	13.6	—	—	—	—	18.3	—	55.8	—	—
Silver	40	—	—	—	—	—	—	—	—	—
Vanadium	18.5	—	—	—	—	—	—	—	—	—
Zinc	169	—	—	—	—	93.6	—	694	—	—

--- indicates the compound was analyzed for, but not detected at a significant level or attributable to site operations.

J indicates an estimated value.

D Indicates compounds at a secondary dilution.

P Indicates a pesticide/Aroclor compound when there is a greater than 25% difference for the detected concentrations between the two columns, the lower of the two values are reported.

B Indicates the compound was detected in the associated blank.

X A qualifier reserved for laboratory use, does not affect the validity of the data.

TABLE 3-5 KEY GROUNDWATER SAMPLE SUMMARY

	1991 Screening Site Inspection Results				1995 Site Team Evaluation Prioritization Results		
COMPOUNDS							
IEPA Sample ID Lab Organic Sample ID Lab Inorganic Sample ID Description	G201 on-site	G202 residence	G203 subdivision		G101 EAPL 9 MEADY7 on-site	G102 EAPM0 MEADY 8 dup G101	G103 EAAZ8 MEADY9 residence
SEMIVOLATILES (ppb)							
Bis (2-ethylhexyl)phthalate	----	----	----		38	----	----

- - Indicates the compound was analyzed for, but not detected at a significant level or attributable to site operations.

B Indicates the compound was detected in the associated blank.

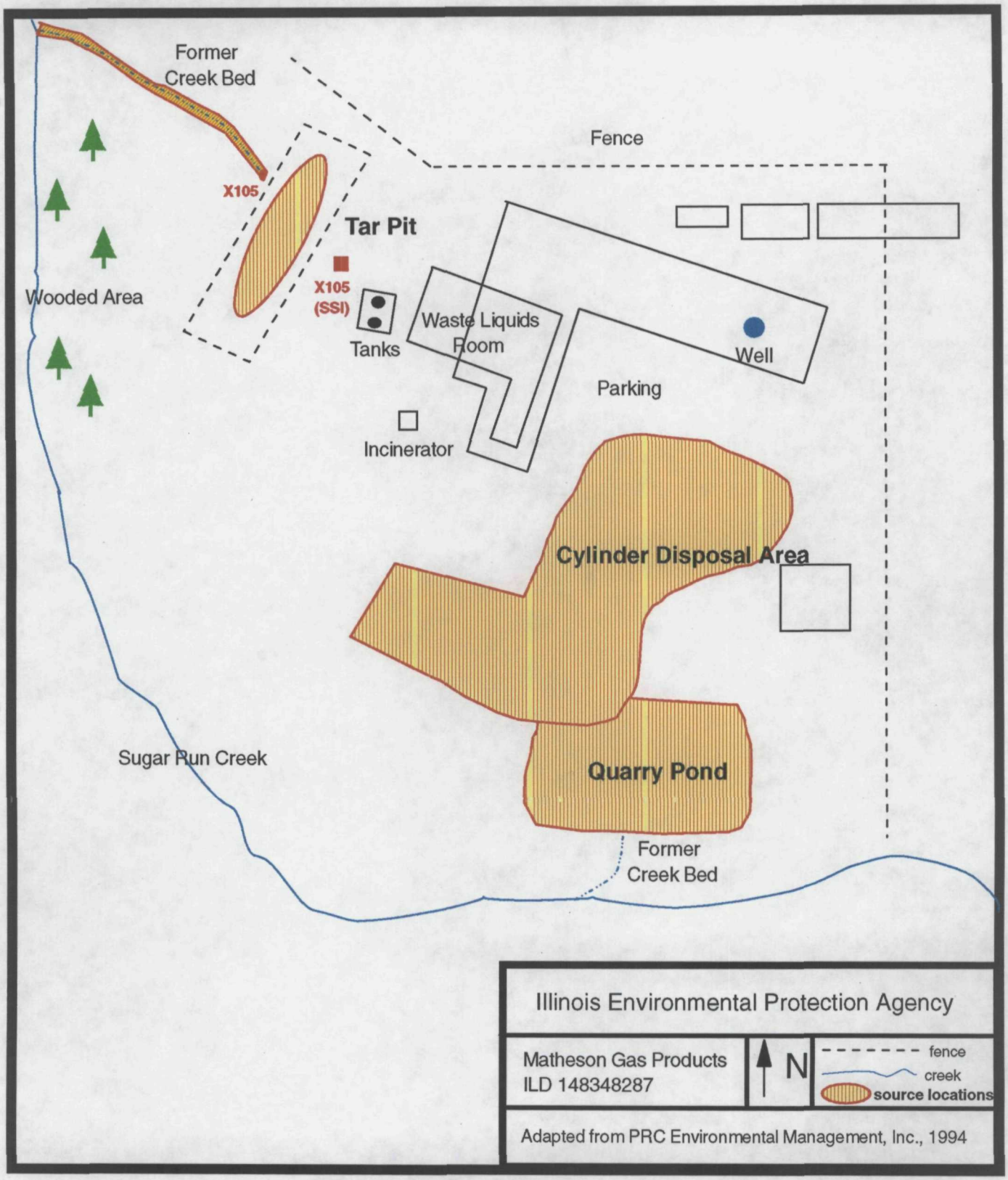


Figure 4-1

Source Location Map

Based on analytical data collected during the Screening Site Inspection in 1991, the tar pit is considered a source. Samples X106 and X107 from the Screening Site Inspection were collected from the tar pit. These samples revealed the presence of benzene, ethylbenzene, toluene, xylene, chrysene, naphthalene, fluorene, phenanthrene, 2-methylnaphthalene, phenol, DDT, and lead (refer to table 3-2 and 3-4).

The contents of the tar pit have migrated from the pit area to adjacent properties. These areas adjacent to the tar pit also contain this viscous waste. Specifically, areas to the south and east have been filled over with gravel and fill by Matheson Gas to expand operations. This is the location at which a tar-like substance was observed coming up through the parking lot. Sample X105 from the Screening Site Inspection was collected from the area east of the tar pit where the waste was coming up from below the gravel and fill. Acetone, toluene, ethylbenzene, xylene, phenol, naphthalene, 2-methylnaphthalene, phenanthrene, antimony, and lead were detected in sample X105.

4.2 CYLINDER DISPOSAL AREA (LANDFILL)

The cylinder disposal area is located to the north and to the west of the quarry pond (refer to Figure 4-1). During the 1960s, Matheson Gas disposed of scrap cylinders on their property. It is not known whether remnant gas remained in the cylinders at the time of disposal. However, the cylinders may have contained phosgene, chlorine, hydrogen sulfide, and nitrogen dioxide. The northern portion of the area in which the cylinders were buried is used as a parking lot. The remainder of the cylinder disposal area has been indicated by signs that read "Caution Buried Cylinders Do Not Excavate." The entire area is approximately 175 feet wide by 200 feet long.

The cylinder disposal area had no release controls present. No liner is believed to be present, and no runoff collection system was observed. The cylinders were used as fill material. The area containing the cylinders had a higher elevation than that of the surrounding area. Furthermore, the area is not fenced. The only indication of the area is by the signs.

Based on analytical data collected during this STEP investigation, the cylinder disposal area is considered a source. Sample X203 revealed the presence of fluoranthene, pyrene, benzo(a)anthracene, chrysene, bis(2-ethylhexyl)phthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, phenanthrene, di-n-butylphthalate, polychlorinated biphenyls (PCBs), pesticides, antimony, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

4.3 QUARRY POND (SURFACE IMPOUNDMENT)

The quarry pond is located on the southeast portion of the site (refer to Figure 4-1). The quarry pond measures approximately 140 feet by 100 feet. The deepest point is 15 feet deep. The quarry was dug before 1911. It is not known when the quarry became filled with water. Matheson Gas has been discharging wastewater into the pond since 1946. Matheson Gas has a NPDES permit to discharge wastewater into the pond. The wastewater generated by Matheson Gas is the result of cylinder washing, hydrostatic testing, and cooling water. Gas cylinders may also have been disposed of in the quarry pond.

There are no controls that would prevent migration of contaminants from the pond to Sugar Run Creek. No liner, diking, or runoff control system was present. In fact, overflow from the quarry pond enters Sugar Run Creek via a ditch that runs from the quarry pond to Sugar Run Creek.

Based on analytical data, the quarry pond is considered a source. Samples X102, X108, and X109 were collected from the quarry pond during the Screening Site Inspection in 1991. Sample X102 was collected from adjacent the quarry pond in a runoff area during the STEP investigation. These samples revealed the presence of acetone, ethylbenzene, toluene, xylene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, bis(2-ethylhexyl)phthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, phenanthrene, anthracene, di-n-butylphthalate, PCBs, antimony, arsenic, chromium, copper, lead, magnesium, manganese, and silver.

4.4 CONTAMINATED SOIL

Contaminated soil is present in the intermittent ditch located between the tar pit and Sugar Run Creek on the western portion of the property. The ditch is approximately two feet wide and 200 feet long as delineated by sample points X103/X104 and X105 collected during this STEP investigation and samples X103 and X104 collected during the Screening Site Inspection. Therefore, the area of contaminated soil is 400 ft^2. These samples revealed the presence of acetone, methylene chloride, chrysene, bis(2-ethylhexyl)phthalate, pesticides, antimony, cadmium, chromium, copper, lead, mercury, and zinc at elevated levels. Acetone, chrysene, and lead were also detected in samples collected from the tar pit. It is possible that the tar pit, which has no migration controls present, has overflowed into the ditch causing the migration of contaminants.

A second area of contaminated soil is present at the site. The area adjacent to the tar pit which contains the viscous waste from the tar pit is also an area of contaminated soil. Currently, only one sample was collected from the area adjacent to the pit. Therefore, this area of contaminated

soil cannot accurately be defined. However, the one sample that was collected from this area, sample X105 from the Screening Site Inspection, revealed contamination. Sample X105 was collected from the location at which a tar-like substance was observed coming up through the parking lot. This sample contained the presence of acetone, toluene, ethylbenzene, xylene, phenol, naphthalene, 2-methylnaphthalene, phenanthrene, antimony, and lead.

5.0 DISCUSSION OF MIGRATION PATHWAYS

The CERCLA Site Assessment Program identifies three migration pathways and one exposure pathway, as identified in HRS, by which hazardous substances may pose a threat to human health and/or the environment. Consequently, sites are evaluated on their known or potential impact to these four pathways. The pathways evaluated are groundwater migration, surface water migration, soil exposure, and air migration.

In order to completely characterize the site, all available data and analytical results were evaluated. Therefore, information collected during the STEP as well as the Screening Site Inspection is included in the discussion of migration pathways and the various human and environmental targets within the established target distance limits.

5.1 GROUNDWATER

According to well logs and an Illinois State Geological Survey Report entitled *Groundwater Possibilities in Northeastern Illinois,* the geology of the area consists of a loam-type material with a clay layer and bedrock. Loam is present from the surface to three feet deep. At approximately three feet deep is a layer of clay which extends from three feet to 12 feet deep. Underlying the clay layer is Silurian Dolomite to a depth of 240 feet deep. This dolomite is part of the geohydrologic system present throughout northeastern Illinois that is referred to as the shallow dolomite aquifer system. This dolomite is underlain by the Maquoketa Group which consists primarily of non water-bearing shales that separate the Silurian aquifer from the deeper water-bearing units. These shales are generally between 100 to 250 feet thick and occur from approximately 50 to 500 feet in depth. Below the Maquouketa lies the thick sequence of

hydrologically connected rocks that are referred to as the Cambrian Ordovician aquifer system. This aquifer system consists of dolomite, sandstone, and shale.

The aquifer of concern in the area of the site is the Silurian Dolomite aquifer. Groundwater is present at approximately two feet. Groundwater is believed to flow in the direction of topographic features with regional groundwater flow to the west and south toward Sugar Run Creek. There are municipal and private wells that obtain water from this aquifer in the area surrounding the site. Approximately 20 public water supply systems and private wells obtain water from this aquifer. These wells serve approximately 16700 residents within a four-mile radius of the Matheson Gas Products site. Public wells range in depth from 50 to 360 feet. The closest public well to the site is located .25 miles north of the site in Clearview Subdivision and serves 315 residents. Private wells range in depth from 30 to 340 feet. The closest private well is located on site and is used for drinking by employees at the facility. Well logs are contained in Appendix C. The total population served by groundwater from the aquifer of concern within a four-mile radius of the site is illustrated in Table 5-1.

Table 5-1 Population Served by Groundwater	
Distance	Population
on-site	24
0-1/4	376
1/4-1/2	2023
1/2-1	299
1-2	12443
2-3	706
3-4	891

Population numbers were based on the average number of 3.07 persons per household for Will County as determined by 1990 Census.

The remainder of the residents within a four-mile radius of the site obtain water from the city of Joliet. The city of Joliet has five wells that obtain water from the deeper Cambrian-Ordovician aquifer at depths between 1400 and 1700 feet. Three of these wells are located within a four-mile radius of the site. The nearest well is located 1.5 miles northwest of Matheson Gas, across the Des Plaines River.

Six groundwater samples were collected during the Screening Site Inspection and the STEP investigations. Selenium and vanadium in sample G202 and copper in sample G103 were detected at elevated levels. G202 was collected from a residential well located approximately 400 feet south of the site, and G103 was collected from a residential well located approximately .5 miles south of the site . However, these elevated concentrations cannot be attributed to Matheson Gas Products. The results from the samples collected from the well on site revealed

the presence of bis(2-ethylhexyl)phthalate at a level above Superfund Chemical Data Matrix (SCDM) benchmark for drinking water.

5.2 SURFACE WATER

There are three routes by which runoff, drainage, or potential contaminants may migrate away from the site. First, an intermittent ditch located on the northwest portion of the property carries runoff from the site, specifically the area around and including the tar pit. Second, runoff from the quarry pond enters a ditch which may potentially carry contaminants directly to Sugar Run Creek. Finally, Sugar Run Creek borders the site on the west and the south. Runoff may potentially enter Sugar Run Creek at any point where the site is bordered by the creek. One specific area of concern is near the gas cylinder disposal area. The probable point of entry (PPE) for all of these routes is Sugar Run Creek. Sugar Run Creek empties into the Des Plaines River at approximately 1.5 miles southwest of the site. The remainder of 15-mile target distance limit is in the Des Plaines River, ending near the Des Plaines Wildlife Conservation Area.

There are several potential targets associated with the surface water pathway. According to the National Wetland Inventory Maps, there are wetlands located along Sugar Run Creek and the Des Plaines River. There is approximately 800 feet of wetland frontage located along Sugar Run Creek and additional wetland frontage along the Des Plaines River (refer to Figure 2-9). The Des Plaines River is a fishery. Other sensitive environments include a state wildlife refuge, state designated natural areas, and habitats known to be used by state designated endangered or threatened species (refer to Appendix A).

There are two water bodies of concern associated with the Matheson Gas Products site. First, there is a pond located on site that has been referred to as the quarry pond. The samples collected from the quarry pond are discussed in Sections 3-4 and 4-3. Second, Sugar Run Creek forms the southern and western borders of the site. Samples X202, X204, and X205 were collected from Sugar Run Creek. Sample X202 was collected at the point where the ditch migrating from the quarry pond enters Sugar Run Creek. This sample detected elevated levels of PCBs. PCBs were also detected at an elevated level in sample X102 from the Screening Site Inspection, which was taken from the quarry pond. Sample X204 was collected from Sugar Run Creek just southwest of the tar pit. This sample detected di-n-butylphthalate at an elevated level which was also detected in other samples collected on site. Sample X205 detected elevated levels of acetone, methylene chloride, and PCBs.

5.3 SOIL EXPOSURE

Samples collected from the Matheson Gas Products site reveal the presence of contaminants at or near the surface. This creates the possibility for soil exposure. Contributing to the potential for soil exposure is the proximity of residences and access to the property. Approximately 6144 people live within a one-mile radius of the site at which contamination has been documented. The site is fenced on the north and east sides of the property. There is also a fence around the tar pit. However, access to the site is relatively easy through wooded areas on the west and south sides. Reportedly, children have occasionally played in the wooded area on the west and south sides of the property.

Because the site is easily accessible from the south and the west, soil exposure is considered a possible hazard to human health. Samples X103 and X105 contained elevated levels of Dieldrin. Sample X103 was collected from the intermittent ditch that leads from the tar pit area west towards Sugar Run Creek, and sample X105 was collected at the edge of the tar pit at the point where the intermittent ditch begins. Three soil samples were collected during the Screening Site Inspection, samples X103, X104, and X105, which are considered "key" samples. Sample X103 contained elevated levels of antimony and silver; it was collected from the intermittent ditch that leads from the tar pit area west towards Sugar Run Creek. Sample X104 was collected at the north edge of the tar pit, one foot north of the fence; acetone, bis(2-ethylhexyl)phthalate, chrysene, cadmium, chromium, copper, lead, mercury, and zinc were detected in sample X104. Sample X105 was collected from the lot area about eighty feet east of the bottling building and sixty feet south of the north fence. The sample contained acetone, toluene, ethylbenzene, xylene, phenol, naphthalene, 2-methylnaphthalene, phenanthrene, antimony, and lead.

5.4 AIR

No releases to air have been documented. However, the presence of contaminants at or near the ground surface creates the potential for windblown particulates to carry contaminants away from the site. Potential targets include wetlands and an estimated 78054 residents present within a four-mile radius of the site (refer to Table 5-2). This estimate is based on USGS topographic maps of the area and the average 3.06 person per household for Will County as determined by the U.S. Census Bureau.

Table 5-2 Surrounding Population	
Distance	Population
on-site	24
0-1/4	306
1/4-1/2	1224
1/2-1	4590
1-2	16830
2-3	29070
3-4	26010

Population numbers were based on the average number of 3.06 persons per household for Will County as determined by 1990 Census.

6.0 ADDITIONAL RISK BASED OBJECTIVES

Three forms of screening objectives were used to preform a site specific risk based assessment of Matheson Gas Products, Tiered Approach to Corrective Action Objectives (TACO), Ontario Aquatic Sediment Quality Guidelines, and USEPA Ecotox. These objectives have not been used to assess the site for Hazard Ranking System (HRS) purposes.

IEPA's TACO guidance document (35 IL Adm. Code Part 742) is used along with the groundwater standards established in 36 IL Adm. Code 620 to determine remediation objectives for soil and groundwater. TACO discusses the three-tiered system for risk-based objectives and the use of background values in the risk-based approach. All three forms of screening objectives are used to preform a risk assessment on the sediment.

6.1 TACO SOIL OBJECTIVES

Tier 1 of TACO contains a set of objective values which are based on simple numeric models. Each set of values is specific to the intended use of the property, residential or industrial/commercial. The values for soil objectives are specific to three exposure routes, ingestion, inhalation, and migration to groundwater.

High concentrations of methylene chloride, benzo(b)fluoranthene, and benzo(k)fluoranthene were detected in all of the soil samples. Samples X101 is a background sample. Sample X102 contains a high number of semivolatiles (refer to Table 6-1).

6.2 TACO GROUNDWATER OBJECTIVES

Because of the on-site drinking well, the groundwater under the site is classified as Class I groundwater. Concentrations of bis(2-ethylhexyl)phthalate, barium, copper, magnesium, silver, and zinc were found in all of the groundwater samples at levels above the Tier 1 objectives (refer to Table 6-1).

6.3 TACO SEDIMENT OBJECTIVES

The TACO sediment remediation objectives are screening concentrations which have been developed to be protective of sensitive receptors at a site, human or non-human, by using conservative assumptions about exposure potential. Sample X203 contains concentrations of four semivolatiles that are above the objective values (refer to Table 6-3).

6.4 ONTARIO AQUATIC SEDIMENT QUALITY GUIDELINES

Ontario sediment quality guidelines are non-regulatory ecological benchmark values that serve as indicators of potential aquatic impacts. The lowest effect levels (LELs) indicate a level of pollution, which has no effect on the majority of the sediment dwelling organisms. The severe effect levels (SELs) represent heavily polluted conditions that are expected to affect the health of benthic organisms. Samples X202, X203, and X205 contain levels of aroclor-1260 that exceed Ontario Quality Guidelines. Sample X203 also contains concentrations of pesticides and chromium that exceed Ontario Quality Guidelines (refer to Table 6-4).

6.5 ECOTOX THRESHOLDS

Ecotox Thresholds are ecological benchmarks that are media-specific contaminant concentrations above which there insufficient concern regarding adverse ecological effects to warrant further

site investigation. Ecotox Thresholds are not regulatory criteria, site-specific cleanup standards or remediation goals. USEPA established these values for screening purposes only. Concentrations of semivolatiles, pesticides, and lead exceeding the Ecotox values were found in sample X203 (refer to Table 6-5).

TABLE 6-1 TACO SOIL OBJECTIVES SUMMARY

1995 Site Team Evaluation Prioritization Results

COMPOUNDS						
EPA Sample ID	Tier 1 Soil	X101	X102	X103	X104	X105
Lab Organic Sample ID	Remediation	EAPK9	EAPL0	EAPL1	EAPL2	EAPL3
Lab Inorganic Sample ID	Objectives	MEAET7	MEAET8	MEAET9	MEAEL8	MEAEL9
Description		background	quarry pond	soil	dup X103	soil
VOLATILES (ppb)						
Acetone	16	----	20 B	19 B	----	27 B
Methylene Chloride	0.02	9 JB	8 JB	9 B	11 JB	10 JB
SEMIVOLATILES (ppb)						
Fluoranthene	4300	----	7800 DJ	----	----	----
Pyrene	4200	----	7600 DJ	----	----	----
Benzo(a)anthracene	2	130 J	5500 DJ	77 J	70 J	----
Chrysene	160	----	5300 DJ	----	----	----
Bis(2-ethylhexyl)phthalate	410	----	41000 DB	----	----	----
Benzo(b)fluoranthene	5	200 XJ	8100 DX	160 JX	140 XJ	61 XJ
Benzo(k)fluoranthene	49	190 XJ	9100 DX	150 JX	130 XJ	59 XJ
Benzo(a)pyrene	0.8	110 J	3000	89 J	81 J	----
Indeno(1,2,3-cd)pyrene	8	70 J	1400	----	----	----
Dibenzo(a,h)anthracene	0.8	----	310 J	----	----	----
PESTICIDES (ppb)						
alpha-BHC	0.0005	.066 JP	----	----	----	----
Aldrin	0.3	.87 JP	----	----	----	----
Heptachlor epoxide	0.6	2.8 P	----	----	----	----
Dieldrin	0.004	----	2.8 JP	4.9 P	4.9 P	5.0 P

-- Indicates the compound was analyzed for, but not detected or not at a level above the Tier 1 objective values.

J Indicates an estimated value.

D Indicates compounds at a secondary dilution.

P Indicates a pesticide/Aroclor compound when there is a greater than 25% difference for the detected concentrations between the two columns, the lower of the two values are reported.

B Indicates the compound was detected in the associated blank.

X A qualifier reserved for laboratory use, does not affect the validity of the data.

TABLE 6-2 TACO GROUNDWATER OBJECTIVES SUMMARY

1995 Site Team Evaluation Prioritization Results

COMPOUNDS				
IEPA Sample ID Lab Organic Sample ID Lab Inorganic Sample ID Description	Tier 1 Groundwater Remediation Objectives	G101 EAPL 9 MEADY7 on-site	G102 EAPM0 MEADY 8 dup G101	G103 EAAZ8 MEADY9 residence
VOLATILES (ppb)				
Methylene Chloride	0.02	----	----	1 JB
SEMIVOLATILES (ppb)				
Bis(2-ethylhexyl)phthalate	410	38	6 JB	5 JB
Diethylphthalate	470	—	—	1 J
Di-n-butylphthalate	2300	1 J	—	1 JB

--- Indicates the compound was analyzed for, but not detected or not at a level above Tier 1 objective values.

J Indicates an estimated value.

B Indicates the compound was detected in the associated blank.

TABLE 6-3 TACO SEDIMENT OBJECTIVES SUMMARY

1995 Site Team Evaluation Prioritization Results

COMPOUNDS							
IEPA Sample ID	*Tier 1 Remediation Objectives*		*X201*	*X202*	*X203*	*X204*	*X205*
Lab Organic Sample ID	affects aquatic	human&animal	*EAPL4*	*EAPL5*	*EAPL6*	*EAPL7*	*EAPL8*
Lab Inorganic Sample ID	& non-aquatic	exposure is	*MEAEM0*	*MEAEL5*	*MEAEL6*	*MEAEL7*	*MEAEL2*
Description	species	unlikely	background	creek	creek	creek	creek
SEMIVOLATILES (ppb)							
Benzo(a)anthracene	179	1600	----	----	6400	210 J	----
Chrysene	400	2800	----	----	5900	----	----
Benzo(b)fluoranthene	550		----	----	11000 X	----	----
Benzo(k)fluoranthene	5500		----	----	12000 X	----	----

— Indicates the compound was analyzed for, but not detected or not at a level above the Tier 1 objective values.

J Indicates an estimated value.

X A qualifier reserved for laboratory use, does not affect the validity of the data.

TABLE 6-4 ONTARIO SEDIMENT STANDARDS SUMMARY

1995 Site Team Evaluation Prioritization Results

COMPOUNDS							
IEPA Sample ID	*Ontario Aquatic*		*X201*	*X202*	*X203*	*X204*	*X205*
Lab Organic Sample ID	*Sediment Quality*		*EAPL4*	*EAPL5*	*EAPL6*	*EAPL7*	*EAPL8*
Lab Inorganic Sample ID	*Guidelines*		*MEAEM0*	*MEAEL5*	*MEAEL6*	*MEAEL7*	*MEAEL2*
Description	LEL	SEL	background	creek	creek	creek	creek
SEMIVOLATILES (ppb)							
Aroclor-1260	5	2400	----	24 J	5000 C	----	58 J
PESTICIDES (ppb)							
beta-BHC	5	21000	----	----	7.9 JPD	----	----
Aldrin	2	8000	----	----	2.6 JPD	----	----
4,4'-DDE	5	19000	----	----	67 PD	----	----
INORGANICS (ppm)							
Chromium	26	110	----	----	473	----	----

--- Indicates the compound was analyzed for, but not detected or not at a level above the objective values.

J Indicates an estimated value.

D Indicates compounds at a secondary dilution.

P Indicates a pesticide/Aroclor compound when there is a greater than 25% difference for the detected concentrations between the two columns, the lower of the two values are reported.

TABLE 6-5 ECOTOX THRESHOLDS SUMMARY

1995 Site Team Evaluation Prioritization Results

COMPOUNDS						
IEPA Sample ID	*USEPA*	*X201*	*X202*	*X203*	*X204*	*X205*
Lab Organic Sample ID	*Ecotox*	*EAPL4*	*EAPL5*	*EAPL6*	*EAPL7*	*EAPL8*
Lab Inorganic Sample ID	*Data*	*MEAEM0*	*MEAEL5*	*MEAEL6*	*MEAEL7*	*MEAEL2*
Description		background	creek	creek	creek	creek
SEMIVOLATILES (ppb)						
Fluoranthene	2900	---	---	13000	---	---
Pyrene	660	---	---	11000	---	---
Benzo(a)pyrene	430	---	---	5400	---	---
Phenanthrene	850	---	---	7700	---	---
Fluorene	540	---	---	930 J	---	---
PESTICIDES (ppb)						
4,4'-DDT	1.6	---	---	130 D	---	---
Methoxychlor	19	---	---	240 PB	---	---
INORGANICS (ppm)						
Lead	47	---	---	1410	---	---

--- Indicates the compound was analyzed for, but not detected or not at a level above the objective values.

J Indicates an estimated value

D Indicates compounds at a secondary dilution.

P Indicates a pesticide/Aroclor compound when there is a greater than 25% difference for the detected concentrations between the two columns, the lower of the two values are reported

B Indicates the compound was detected in the associated blank.

X A qualifier reserved for laboratory use, does not affect the validity of the data.

APPENDIX A

FOUR MILE RADIUS MAP AND

SENSITIVE ENVIRONMENT/SUFACE

WATER MAP

SDMS US EPA Region V

Imagery Insert Form

Some images in this document may be illegible or unavailable in SDMS. Please see reason(s) indicated below:

☐ Illegible due to bad source documents. Image(s) in SDMS is equivalent to hard copy.

Specify Type of Document(s) / Comment

☐ **Confidential Business Information (CBI).**
This document contains highly sensitive information. Due to confidentiality, materials with such information are not available in SDMS. You may contact the EPA Superfund Records Manager if you wish to view this document.

Specify Type of Document(s) / Comment

☒ **Unscannable Material: Oversized _X_ or ___ Format.**
Due to certain scanning equipment capability limitations, the document page(s) is not available in SDMS. The original document is available for viewing at the Superfund Records center.

Specify Type of Document(s) / Comment

4- MILE RADIUS MAP & 15-MILE SURFACE WATER ROUTE MAP

☐ **Other:**

APPENDIX B

TARGET COMPOUND LIST

TARGET COMPOUND LIST

Volatile Target Compounds

Compound	Water CRDL	Soil/Solid CRDL
1. chloromethane	10 ug/l	10 ug/kg
2. bromomethane	10	10
3. vinyl chloride	10	10
4. chloroethane	10	10
5. methylene chloride	5	5
6. acetone	10	10
7. carbon disulfide	5	5
8. 1,1-dichloroethene	5	5
9. 1,1-dichloroethane	5	5
10. 1,2-dichloroethene (total)	5	5
11. 1,2-dichloropropane	5	5
12. chloroform	5	5
13. 1,2-dichloroethane	5	5
14. 2-butanone	10	10
15. 1,1,1-trichloroethane	5	5
16. carbon tetrachloride	5	5
17. vinyl acetate	10	10
18. dichlorobromomethane	5	5
19. c-1,3-dichloropropene	5	5
20. trichloroethene	5	5
21. benzene	5	5
22 chlorodibromomethane	5	5
23. 1,1,2-trichloroethane	5	5
24. t-1,3-dichloropropene	5	5
25. bromoform	5	5
26. 2-hexanone	10	10
27. 4-methyl-2-pentanone	10	10
28. 1,1,2,2-tetrachloroethane	5	5
29. tetrachloroethene	5	5
30. toluene	5	5
31. chlorobenzene	5	5
32. ethylbenzene	5	5
33. styrene	5	5
34. total xylenes	5	5

CRDL - Contract Required Detection Limit

DRINKING WATER SAMPLES -- In the case of drinking water samples, the Lab can be requested to report the instrument detection limit which is lower than the CRDL for VOC analysis. This request must be made at the time of scheduling since more samples will be required by the Lab. (See footnote on previous page).

Base/Neutral Target Compounds

Compound	Water CRDL	Soil/Solid CRDL
1. Hexachloroethane	10 ug/l	330 ug/kg
2. Bis (2-chloroethyl) ether	10	330
3. Benzyl Alcohol	10	330
4. Bis (2-chloroisopropyl) ether	10	330
5. N-nitrosodi-n-propylamine	10	330
6. Nitrobenzene	10	330
7. Hexachlorobutadiene	10	330
8. 2-Methylnaphthalene	10	330
9. 1,2,4-trichlorobenzene	10	330
10. Isophorone	10	330
11. Naphthalene	10	330
12. 4-Chloroaniline	10	330
13. Bis (2-chloroethoxy) methane	10	330
14. Hexachlorocyclopentadiene	10	330
15. 2-chloronaphthalene	10	330
16. 2-Nitroaniline	50	1600
17. Acenaphthylene	10	330
18. 3-Nitroaniline	50	1600
19. Acenaphthene	10	330
20. Dibenzofuran	10	330
21. Dimethylphthalate	10	330
22. 2,6-Dinitrotoluene	10	330
23. Fluorene	10	330
24. 4-Nitroaniline	50	1600
25. 4-Chlorophenyl-phenyl ether	10	330
26. 2,4-Dinitrotoluene	10	330
27. Diethylphthalate	10	330
28. N-Nitrosodiphenylamine	10	330
29. Hexachlorobenzene	10	330
30. Phenanthrene	10	330
31. 4-Bromophenyl-phenyl ether	10	330
32. Anthracene	10	330
33. Dibutylphthalate	10	330
34. Fluoranthene	10	330
35. Pyrene	10	330
36. Butyl benzyl phthalate	10	330
37. Bis (2-ethylhexyl) phthalate	10	330
38. Chrysene	10	330
39. Benzo (a) anthracene	10	330
40. 3,3'-Dichlorobenzidene	20	660
41. Di-n-octyl phthalate	10	330
42. Benzo (b) fluoranthene	10	330
43. Benzo (k) fluoranthene	10	330
44. Benzo (a) pyrene	10	330
45. Indeno (1,2,3-cd) pyrene	10	330
46. Dibenzo (a,h) anthracene	10	330
47. Benzo (g,h,i) perylene	10	330
48. 1,2-Dichlorobenzene	10	330
49. 1,3-Dichlorobenzene	10	330
50. 1,4-Dichlorobenzene	10	330

Acid Target Compounds

Compound	Water CRDL	Soil/Solid CRDL
1. Benzoic Acid	50 ug/l	1600 ug/kg
2. Phenol	10	330
3. 2-chlorophenol	10	330
4. 2-nitrophenol	50	1600
5. 2-methylphenol	10	330
6. 2,4-dimethylphenol	10	330
7. 4-methylphenol	10	330
8. 2,4-dichlorophenol	10	330
9. 2,4,6-trichlorophenol	10	330
10. 2,4,5-trichlorophenol	50	1600
11. 4-chloro-3-methylphenol	10	330
12. 2,4-dinitrophenol	50	1600
13. 2-methyl-4,6-dinitrophenol	50	1600
14. Pentachlorophenol	50	1600
15. 4-nitrophenol	50	1600

Pesticide Target Compounds

Compound	Water CRDL	Soil/Solid CRDL
1. alpha-BHC	.05 ug/l	8.0 ug/kg
2. beta-BHC	.05	8.0
3. delta-BHC	.05	8.0
4. Lindane (gamma-BHC)	.05	8.0
5. Heptachlor	.05	8.0
6. Aldrin	.05	8.0
7. Heptachlor epoxide	.05	8.0
8. Endosulfan I	.05	8.0
9. 4,4'-DDE	.10	16.0
10. Dieldrin	.10	16.0
11. Endrin	.10	16.0
12. 4,4'-DDD	.10	16.0
13. Endosulfan II	.10	16.0
14. 4,4'-DDT	.10	16.0
15. Endrin aldehyde	.10	16.0
16. Endosulfan sulfate	.10	16.0
17. Methoxychlor	.50	80.0
18. alpha-Chlorodane	.5	80.0
19. gama chlorodane	.5	80.0
20. Toxaphene	.50	80.0
21. Arochlor-1016	1.0	160.0
22. Arochlor-1221	.50	80.0
23. Arochlor-1232	.50	80.0
24. Arochlor-1242	.50	80.0
25. Arochlor-1248	.50	80.0
26. Arochlor-1254	1.0	160.0
27. Arochlor-1260	1.0	160.0

Inorganic Target Compounds

Metals Analyses (CRDL)-ug/l*	
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Calcium	5000
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	5
Magnesium	5000
Manganese	15
Mercury	0.2
Nickel	40
Potassium	5000
Selenium	5
Silver	10
Silver	5000
Thallium	10
Vanadium	50
Zinc	20

Other Inorganics
Cyanide
Sulfide
Phenols
Nitrogen-Ammonia
Nitrogen, Total Kjeldahl
Nitrogen-Nitrate
Boron
pH
Sulfate
Chloride

*Any analytical method specified in the Quality Assurance Project Plan (QAPP) may be utilized as long as the documented instrument or method detection limits meet the Contract Required Detection Level requirements. Higher detection levels may only be used in the following circumstance:

If the sample concentration exceeds two times the detection limit of the instrument or method in use, the value may be reported even though the instrument or method detection limit may not equal the CRDL. This is illutrated in the example below:

For Lead:

Method in use -- ICP
Instrument Detection Limit (IDL) = 40
Sample Concentration = 85
Contract Required Detection Level (CRDL) = 5

The value of 85 may be reported even though instrument detection limit is greater than required detection level. The instrument or method detection limit must be documented as described in Form IIIX.

These CRDL are the instrument detection limits obtained in pure water that must be met using ICP/Flame AA or Furnace AA. The detection limits for samples may be considerably higher depending on the sample matrix.

APPENDIX C

WELL LOGS

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL / WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 220 ft.
      Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. 5 in. Depth 40 ft.
   c. Drilled X. Finished in Drift ____. In Rock X.
      Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cement	4'	40'

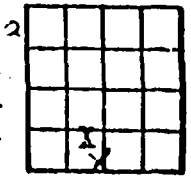
2. Distance to Nearest:
   Building 200 Ft. Seepage Tile Field 75'
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 50' Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Is water from this well to be used for human consumption?
   Yes X No ____
4. Date well completed 3-25-71
5. Permanent Pump Installed? Yes X No ____
   Manufacturer Reda Type Submersible
   Capacity 10 gpm. Depth of setting ____ ft.
6. Well Top Sealed? Yes X No ____
7. Pitless Adaptor Installed? Yes X No ____
8. Well Disinfected? Yes X No ____
9. Water Sample Submitted? Yes ____ No X

REMARKS:

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Ethel Scott Well No. 1
    Address 405 Champlain St.-Joliet, Ill.
    Driller Lockport Well & Pump License No. 180
11. Permit No. 11929 Date 3-17-71
12. Water from Limestone Formation 13. County Will
    at depth 40 to 220 ft. Sec. 21, 52
    14. Screen: Diam. ____ in. Twp. 35N
    Length: ____ ft. Slot ____ Rge. 10E
    Elev. ____



SHOW LOCATION IN SECTION PLAT
SE SE
52

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	A-53 15lbs.	0'	40'

16. Size Hole below casing: 5 in.
17. Static level 40 ft. below casing top which is 0 ft. above ground level. Pumping level 40 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	1'	1'
Clay	3'	4'
Lime	176'	180'
Shaley Lime	15'	195'
Lime	20'	215'
Shale	5'	220'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Hayford DATE 3-26-71

INSTRUCTIONS TO DRILLER

e Copy –
. Dept. of Public Hea
ow Copy – Well Contr ctor
Copy – Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AN IL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL / WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 66 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. 2" in. Depth 57 ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular _____. Gravel Packed _____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 30 Ft. Seepage Tile Field 75'
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank 50' Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Is water from this well to be used for human consumption?
   Yes X No_____
4. Date well completed 1-10-73
5. Permanent Pump Installed? Yes X No_____
   Manufacturer PACKARD Type SUBMERSIBLE
   Capacity 10 gpm. Depth of setting 43 ft.
6. Well Top Sealed? Yes X No_____
7. Pitless Adaptor Installed? Yes X No_____
8. Well Disinfected? Yes X No_____
9. Water Sample Submitted? Yes_____ No X

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner [illegible] Well No. 1
    Address [illegible]
    Driller [illegible] License No. 110
11. Permit No. 4333 Date 1-16-73
12. Water from [illegible] Formation 13. County [illegible]
    at depth 57 to 66 ft.
14. Screen: Diam._____in.
    Length:_____ft. Slot_____
    Sec. 28 S 16
    Twp. 35N
    Rge. 10E
    Elev._____

SHOW LOCATION IN SECTION PLAT
NE SE SE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	4-53 15 lbs	0'	57'

16. Size Hole below casing: 5 in.
17. Static level 51 ft. below casing top which is +1 ft. above ground level. Pumping level 60 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	3'	3'
Clay	37'	40'
Shale & Gravel	17'	57'
Limestone	9'	66'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

DPH 4.065
0/68

SIGNED [illegible] DATE 3-23-73

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 125 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. 5 in. Depth 57 ft.
   c. Drilled X. Finished in Drift_____. In Rock X.
   Tubular_____. Gravel Packed _____.
   d. Grout:

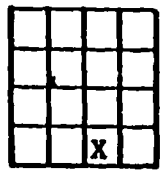
(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 25 Ft. — Seepage Tile Field 75'
   Cess Pool _____ — Sewer (non Cast iron) _____
   Privy _____ — Sewer (Cast iron) _____
   Septic Tank 50' — Barnyard _____
   Leaching Pit _____ — Manure Pile _____
3. Well furnishes water for human consumption? Yes X No_____
4. Date well completed 5-13-83
5. Permanent Pump Installed? Yes___ Date _____ No X
   Manufacturer_____ Type _____ Location _____
   Capacity_____ gpm. Depth of Setting _____ Ft.
6. Well Top Sealed? Yes X No_____ Type Vermin-Proof (Wms.)
7. Pitless Adapter Installed? Yes X No_____
   Manufacturer Williams Model Number B-50AC
   How attached to casing? _____
8. Well Disinfected? Yes X No _____
9. Pump and Equipment Disinfected? Yes X No_____
10. Pressure Tank Size 42 gal. Type #202 Well-X-Trol
    Location house
11. Water Sample Submitted? Yes_____ No X

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner John Lucas Well No. 1
    Address 993 Eunice St., Joliet, IL
    Driller Charles Fykes License No. 23
11. Permit No. 107055 Date 5-6-83
12. Water from Limestone (Formation) at depth 81 to 125 ft.
13. County Will
    Sec. 26
    Twp. 35N
    Rge. 10E
    Elev. _____



SHOW LOCATION IN SECTION PLAT
SW SE NW

14. Screen: Diam._____ in.
    Length:_____ ft. Slot_____
15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	Sch 40 PVC	0	57
	1120-NSF 2.87#		

16. Size Hole below casing: 5 in.
17. Static level(-) 30 ft. below casing top which is +1 ft. above ground level. Pumping level 50 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	2'	2'
Clay	55'	57'
Gray Limestone	13'	70'
Shale	10'	80'
White Limestone	45'	125'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Fykes DATE 7-28-83

IDPH 4.065
1/74 – NNB-1

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ___. Bored ___. Hole Diam. 5 in. Depth 150 ft.
   Curb material ___. Buried Slab: Yes ___ No ___
   b. Driven ___. Drive Pipe Diam. 5 in. Depth 45 ft.
   c. Drilled X. Finished in Drift ___. In Rock X.
   Tubular ___. Gravel Packed ___.
   d. Grout:

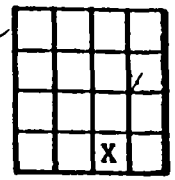
(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 30 Ft. — Seepage Tile Field 75'
   Cess Pool ___ — Sewer (non Cast iron) ___
   Privy ___ — Sewer (Cast iron) ___
   Septic Tank 50' — Barnyard ___
   Leaching Pit ___ — Manure Pile ___
3. Well furnishes water for human consumption? Yes X No ___
4. Date well completed 10-2-84
5. Permanent Pump Installed? Yes X Date 11-28-84 No ___
   Manufacturer Webtrol Type Subm. Location Well
   Capacity 12 gpm. Depth of Setting 120 Ft.
6. Well Top Sealed? Yes X No ___ Type Vermin-Proof (Wms.)
7. Pitless Adapter Installed? Yes X No ___
   Manufacturer Williams Model Number 501TC
   How attached to casing? Compression Gasket Connection
8. Well Disinfected? Yes X No ___
9. Pump and Equipment Disinfected? Yes X No ___
10. Pressure Tank Size 82 gal. Type #203 Well-X-Trol
    Location basement
11. Water Sample Submitted? Yes ___ No X

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Teddy McGann Well No. 1
    Address Mills Rd. & Herman Lane
    Driller Charles Fykes License No. 23
11. Permit No. 115107 Date 10-2-84
12. Water from Limestone (Formation) 13. County Will
    at depth 45 to 150 ft. Sec. 23.2e
14. Screen: Diam. ___ in. Twp. 35N
    Length: ___ ft. Slot ___ Rge. 10E
    Elev. ___



15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	A-53 15 lbs.	0	45

SHOW LOCATION IN SECTION PLAT
SW SE NE

16. Size Hole below casing: 5 in.
17. Static level 30 ft. below casing top which is +1 ft. above ground level. Pumping level 75 ft. when pumping at 12 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	5'	5'
Clay	40'	45'
Limestone	105'	150'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Fykes DATE 11-29-84

IDPH 4.065
1/74 – KNB-1

White C
Ill. D[illegible] of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, BUREAU OF ENVIRONMENTAL HEALTH, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62701. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 205 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. 5 in. Depth 42 ft.
   c. Drilled X____. Finished in Drift _____. In Rock X____.
   Tubular _____. Gravel Packed _____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cement	-5'	42

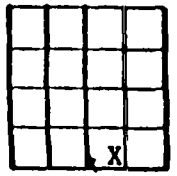
2. Distance to Nearest:
   Building 30 Ft. Seepage Tile Field 75'
   Cess Pool _____ Sewer (non Cast Iron) _____
   Privy _____ Sewer (Cast Iron) _____
   Septic Tank 50' Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Is water from this well to be used for human consumption?
   Yes X No _____
4. Date well completed 2-10-76
5. Permanent Pump Installed? Yes X No _____
   Manufacturer Barnes Type Submersible
   Capacity 10 gpm. Depth of setting 60 ft.
6. Well Top Sealed? Yes X No _____
7. Pitless Adaptor Installed? Yes X No _____
8. Well Disinfected? Yes X No _____
9. Water Sample Submitted? Yes _____ No X

REMARKS:

IDPH 4.065
10-72
KNB-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Karl Kolfoid Well No. 1
    Address Sugar Creek
    Driller Charles Fykes License No. 102-23
11. Permit No. 44243 Date 1-14-76
12. Water from Limestone (Formation)
    at depth 25 to 205 ft.
13. County Will
    Sec. 22, [illegible]
    Twp. 35N
    Rge. 10E
    Elev. _____
14. Screen: Diam. _____ in.
    Length: _____ ft. Slot _____



SHOW LOCATION IN SECTION PLAT
SW SW SE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	A-53 15 lbs.	0	42

16. Size Hole below casing: 5 in.
17. Static level 40 ft. below casing top which is +1 ft. above ground level. Pumping level 40 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Clay	10'	10"
Gravel	8'	18"
Shale	7'	25"
Limestone	180'	205"

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Fykes DATE 9-20-79

White Copy – Ill Dept of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 100 ft.
      Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. 5 in. Depth 62 ft.
   c. Drilled X. Finished in Drift ____. In Rock X.
      Tubular ____. Gravel Packed ____.
   d. Grout

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 30 Ft. Seepage Tile Field 75'
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 50' Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes X No ____
4. Date well completed 2-28-86
5. Permanent Pump Installed? Yes X Date 4-8-86 No ____
   Manufacturer Webtrol Type Subm. Location Well
   Capacity 12 gpm. Depth of Setting 60 Ft.
6. Well Top Sealed? Yes X No ____ Type Vermin-Proof (Wms.)
7. Pitless Adapter Installed? Yes X No ____
   Manufacturer Williams Model Number 501TC
   How attached to casing? Compression Gasket Connection
8. Well Disinfected? Yes X No ____
9. Pump and Equipment Disinfected? Yes X No ____
10. Pressure Tank Size 32 gal. Type #203 Well-X-Trol
    Location basement
11. Water Sample Submitted? Yes ____ No X

REMARKS: County #27295

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Aaron Builders Well No. 1
    Address Lot #35; 7S770 Creek Drive., Hobson Greene Sub.
    Driller Charles Fykes License No. 102-23
11. Permit No. 122355 Date 2-19-86
12. Water from Limestone (Formation) at depth 62 to 100 ft.
13. County DuPage
    Sec. 22.d, Twp. 35N, Rge. 10E, Elev. ____
14. Screen: Diam. ____ in. Length: ____ ft. Slot ____
15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	A-53 15 lbs.	0	62

SHOW LOCATION IN SECTION PLAT

X		X	

Lot #35 Hobson Greene Subd. SW SW SE

16. Size Hole below casing: 5 in.
17. Static level 45 ft. below casing top which is +1 ft. above ground level. Pumping level 50 ft. when pumping at 12 gpm for 1 hours.
18.

FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Clay	6'	6'
Clay & Rocks	11'	17'
Gravel	13'	30'
Sand	9'	39'
Broken limestone	5'	44'
Sand	5'	49'
Broken limestone	13'	62'
Limestone	38'	100'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Fykes DATE April 9, 1986

IDPH 4.065
1/74 – KNB-1

Ill ...pt. of Public Health
... Copy: Well Contractor
Go... Copy: Well Owner

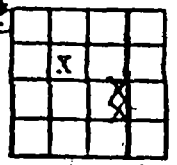
Well Construction Report

THIS FORM MUST BE COMPLETED WITHIN 30 DAYS OF WELL COMPLETION AND SENT TO THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ENVIRONMENTAL HEALTH 525 WEST JEFFERSON STREET SPRINGFIELD, ILLINOIS 62761

RECEIVED
JAN 20 1989
DIVISION OF ENVIRONMENTAL HEALTH

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller Charles Fykes License No. 102-00023
10. Well Site Address 619 Manhattan Road Joliet, IL
11. Property Owner Art Thompson Well No. 1
12. Permit No. 006832 Date Issued 10-14-88
13. Location: County Will
Sec. 22-28-3c
Twp. 35N
Rge. 10E



Show location in section plat

SE ¼ SE

1. Type of Well
   a. Bored ____ Hole Diam. 5 in. Depth 105 ft
      Buried Slab: Yes ___ No ___
   b. Driven ____ Drive Pipe Diam. 5 in. Depth 42 ft
   c. Drilled X Finished in Drift ____ In Rock X
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

14. Water from Limestone at depth 40 ft to 105 ft

15. Casing and Liner Pipe

Diam.(in)	Kind and Weight	From (ft)	To (ft)
5	A-53 15 lbs.	0	42

2. Well furnishes water for human consumption? Yes X No ___
3. Date well drilled 8-12-88
4. Permanent pump installed? Yes X Date 12-21-88 No ___
   Manufacturer Wehtrol Type Subm.
   Location Well
   Capacity 10 gpm. Depth of setting 80 ft.
5. Well top sealed? Yes X No ___ Type Vermin-Proof (Wms.)
6. Pitless adapter installed? Yes X No ___
   Manufacturer Williams Model No. 501TC
   How attached to casing? Compression Gasket Connection
7. Well disinfected? Yes X No ___
8. Pump and equipment disinfected Yes X No ___

16. Screen: Diam. ___ in, Length ___ in, Slot Size ___
17. Size hole below casing 5 in. 18. Ground Elev. ____ ft msl.
19. Static level 35 ft below casing top which is +1 ft. above ground level. Pumping level 60 ft, pumping gpm for 1 hours.

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
Clay	0	35
Gravel	35	40
Limestone	40	105

Continue on separate sheet if necessary.

IMPORTANT NOTICE

This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center.

#30804
Co

PRESS FIRMLY WITH BLACK PEN OR TYPE
Do Not Use Felt Pen

Signed Charles Fykes Date 1-17-89

IL482-0126

White Copy - Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUIRED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL / WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____ Bored ____ Hole Diam. 5 in. Depth 235 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____ Drive Pipe Diam. 5 Depth 42 ft.
   c. Drilled ✓ Finished in Drift ____ In Rock ✓
   Tubular ____ Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 25 Ft. Seepage Tile Field 75
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 50 Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Is water from this well to be used for human consumption?
   Yes ✓ No ____
4. Date well completed 1-4-74
5. Permanent Pump Installed? Yes ✓ No ____
   Manufacturer Goulds Type Submersible
   Capacity 10 gpm. Depth of setting 42 ft.
6. Well Top Sealed? Yes ✓ No ____
7. Pitless Adapter Installed? Yes ✓ No ____
8. Well Disinfected? Yes ✓ No ____
9. Water Sample Submitted? Yes ____ No ✓

REMARKS:

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Edmiston-Miller Co. Well No. 622
    Address Galva, Ill.
    Driller Hart License No. 100-42
11. Permit No. 24879 Date 8-15-73
12. Water from Limestone Formation 13. County Knox
    at depth 63 to 225 ft.
    Sec. 15
    Twp. 13N
    Rge. 1E
    Elev. ____
14. Screen: Diam. ____ in.
    Length: ____ ft. Slot ____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Black 15#	0	42

SHOW LOCATION IN SECTION PLAT

(Lot #7 County Clerk's Survey located in the above quoted quarter)

16. Size Hole below casing: ____ in.
17. Static level ____ ft. below casing top which is ____ ft. above ground level. Pumping level ____ ft. when pumping at ____ gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Clay & Gravel	0	42
Limestone	42	225

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Peter Rod DATE 3-27-74

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, BUREAU OF ENVIRONMENTAL HEALTH, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62701. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ___ Bored ___. Hole Diam. 5 in. Depth 245 ft.
   Curb material ___. Pitless Slab: Yes ___ No ___
   b. Driven ___. Drive Pipe Diam. 5 in. Depth 42 ft.
   c. Drilled X. Finished in Drift ___. In Rock X.
   Tubular ___. Gravel Packed ___.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cemented	-5'	42'

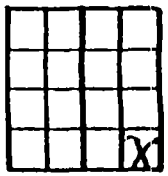
2. Distance to Nearest:
   Building 312 Ft. Seepage Tile Field 75'
   Cess Pool ___ Sewer (non Cast iron) ___
   Privy ___ Sewer (Cast iron) ___
   Septic Tank 510' Barnyard ___
   Leaching Pit ___ Manure Pile ___
3. Is water from this well to be used for human consumption?
   Yes X No ___
4. Date well completed 3-28-77
5. Permanent Pump Installed? Yes X No ___
   Manufacturer Barnes Type Submersible
   Capacity 12 gpm. Depth of setting 140 ft.
6. Well Top Sealed? Yes X No ___
7. Pitless Adaptor Installed? Yes X No ___
8. Well Disinfected? Yes X No ___
9. Water Sample Submitted? Yes ___ No X

REMARKS:

IDPH 4.065
10-72
KNB-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Arnold Kumpf Well No. 1
    Address Oakview
    Driller Charles Fykes License No. 23
11. Permit No. 57971 Date 3-21-77
12. Water from ___ (Formation)
    at depth 15 to 245 ft.
13. County Will
    Sec. 14
    Twp. 35N
    Rge. 10E
    Elev. ___



SHOW LOCATION IN SECTION PLAT NW 1/4 SE

14. Screen: Diam. ___ in.
    Length: ___ ft. Slot ___
15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	A-53 15 lbs.	0	42

16. Size Hole below casing: 5 in.
17. Static level 100 ft. below casing top which is + 1 ft. above ground level. Pumping level 100 ft. when pumping at 12 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Clay	15	15
Limestone	230	245

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Fykes DATE 11-29-79

INSTRUCTION TO DRILLERS

White Copy – Illinois Department of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM [illegible], STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ___. Bored ___. Hole Diam. 5 in. Depth 180 ft.
   Curb material ___. Buried Slab: Yes ___ No ___
   b. Driven ___. Drive Pipe Diam. 5 in. Depth 40 ft.
   c. Drilled X. Finished in Drift ___. In Rock X.
   Tubular ___. Gravel Packed ___.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cement	4'	40'

2. Distance to Nearest:
   Building 330 Ft. Seepage Tile Field 75'
   Cess Pool ___ Sewer (non Cast iron) ___
   Privy ___ Sewer (Cast iron) ___
   Septic Tank 50' Barnyard ___
   Leaching Pit ___ Manure Pile ___
3. Is water from this well to be used for human consumption?
   Yes X No ___
4. Date well completed 8-31-73
5. Permanent Pump Installed? Yes X No ___
   Manufacturer Barnes Type Submersible
   Capacity 10 gpm. Depth of setting 147 ft.
6. Well Top Sealed? Yes X No ___
7. Pitless Adaptor Installed? Yes X No ___
8. Well Disinfected? Yes X No ___
9. Water Sample Submitted? Yes ___ No X

REMARKS:

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Edward Matthews Well No. 1
    Address 332 South Ottawa St
    Driller Lafayette Well & Pump License No. 100
11. Permit No. 19750 Date 8-30-73
12. Water from Limestone Formation 13. County Will
    at depth 40 to 180 ft.
    Sec. 21
    Twp. 35N
    Rge. 10E
    Elev. ___
14. Screen: Diam. ___ in.
    Length: ___ ft. Slot ___

SHOW LOCATION IN SECTION PLAT
NW NW SE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	A-53 15 lb	0'	40

16. Size Hole below casing: 5 in.
17. Static level 140 ft. below casing top which is +1 ft. above ground level. Pumping level 146 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	1'	1'
Gravel	4'	5'
Flagstone	30'	35'
Limestone	155'	180'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 9-8-73

APPENDIX D

SAMPLE RESULTS FROM

1991 SCREENING SITE INSPECTION

Sample	Depth	Appearance	Location
X101	0-6"	black soil	Background sample taken about 300' south of bottling building across creek
X102	0-6"	dark, wet sand and mud	Southern edge of quarry pond at overflow discharge to Sugar Run creek
X103	0-6"	soil with black tar-like material	Along former creek bed about 35' south from confluence of Sugar Run creek
X104	0-6"	dark brown soil with viscous tar material	At north edge of tar pit one foot north of fence
X105	0-6"	black, viscous tar-like material	About 80' east of bottling building and 60' south of north fence line in lot area
X106	0-6"	black, viscous tar-like material	At southern end of fenced tar pit about 10' north inside tar pit
X107	0-6"	black, viscous tar-like material	At north end of fenced tar pit about 18' south inside tar pit
X108	0-6"	brown/black mud with red discoloration	At north edge of quarry pond about 30' east of NPDES discharge outfall pipe
X109	0-6"	black/green mud	About 16' south of NPDES discharge outfall to quarry pond along discharge route

Site Sampling Location Map

approximate scale: 1" = 100"

denotes photo No. and direction

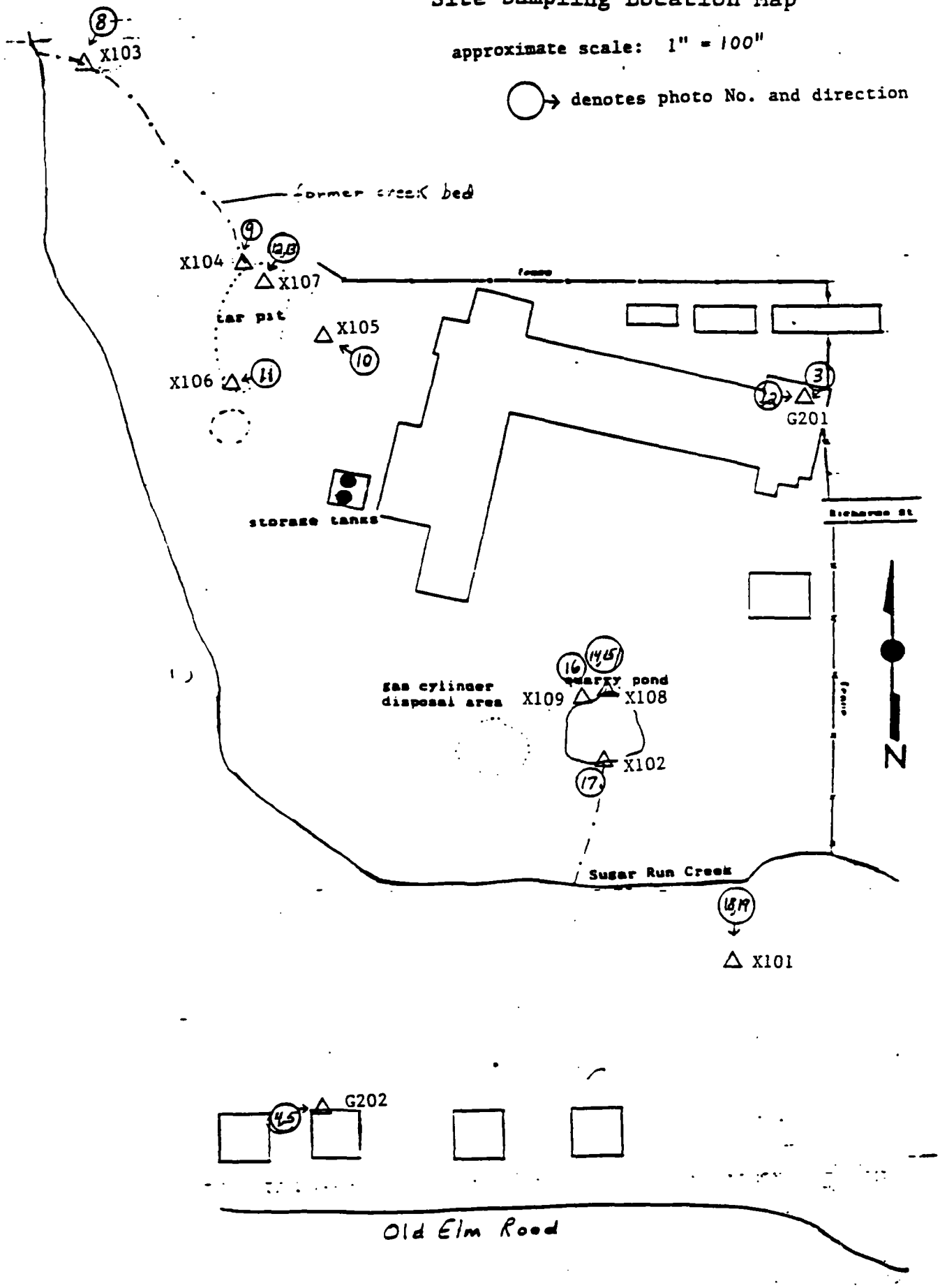


TABLE 4-1
IEPA COLLECTED SAMPLE SUMMARY

atheson Gas Products
LD148348217

ampling Point ample Date	G201 6/4/91	G202 6/4/91	G203 6/4/91	X101 6/5/91	X102 6/5/91	X103 6/4/91	X104 6/4/91	X105 6/4/91	X106 6/4/91	X107 6/4/91	X108 6/5/91	X109 6/5/91	Trip Blank
ARAMETER													
olatiles (parts per billion)													
cetone	--	--	--	--	16.0	10.0J	140.0	1500.0	490.0J	--	170.0	80.0	130.
ethylene Chloride	--	--	--	--	--	--	4.0J	--	260.0J	--	6.0J	--	--
enzene	--	--	--	--	--	--	--	--	2800.0	--	--	4.0J	--
thylbenzene	--	--	--	--	--	--	--	2200.0	1400.0	3200.0	--	10.0	--
oluene	--	--	--	--	--	--	--	--	1900.0	3500.0	--	12.0	--
ylene (total)	--	--	--	--	--	--	--	11000.0	10000.0	14000.0	--	20.0	--
hloroform	--	--	--	--	--	--	--	--	--	--	--	8.0	--
arbon Disulfide	--	--	--	--	--	--	--	--	--	--	--	4.0J	--
,-1 Dichloroethane	--	--	--	--	--	--	--	--	--	--	--	4.0J	--
,1,2,2-Tetrachloroethane	--	--	--	--	--	--	--	2200.0	--	--	--	--	--
emivolatiles (parts per billion)													
hrysene	--	--	--	--	--	--	5100.0J	--	44000.0	--	--	--	--
apthalene	--	--	--	--	--	--	--	14000.0	28000.0J	13000.0J	--	--	--
lourene	--	--	--	--	--	--	--	--	27000.0J	6300.0J	--	--	--
henanthrene	--	--	--	--	--	--	--	48000.0	110000.0	50000.0J	--	--	--
2-Methylnapthalene	--	--	--	--	--	--	--	51000.0	140000.0J	39000.0J	--	--	--
exachlorobenzene	--	--	--	--	--	--	--	--	--	--	--	210.0J	--
henol	--	--	--	--	--	--	--	6800.0J	--	24000.0J	--	420.0J	--
imethyl Phthalate	--	--	--	--	--	--	--	--	--	--	--	390.0J	--
i-n-Butylphthalate	--	--	--	--	--	--	--	--	--	--	--	1700.0J	--
Butylbenzylphthalate	--	--	--	--	--	--	--	--	--	--	--	420.0J	--
is (2-ethylhexyl) Phthalate	--	--	--	--	--	--	8100.0J	--	--	--	--	--	--
is													
Pesticides (parts per billion)													
4,4'-DDT	--	--	--	--	--	--	--	--	270.0	--	--	--	--
Aroclor-1254	--	--	--	--	--	--	--	--	--	--	--	2800.C	--
Aroclor-1260	--	--	--	--	--	--	--	--	--	--	--	3200.0	--

NOTE: The J qualifier indicates an estimated value

Table 4-1 (cont.)

Matheson Gas Products
ILD148348287

Sample Point	G201	G202	G203	X101	X102	X103	X104	X105	X106	X107	X108	X109
Sample Date	6/4/91	6/4/91	6/4/91	6/5/91	6/5/91	6/4/91	6/4/91	6/4/91	6/4/91	6/4/91	6/5/91	6/5/91
PARAMETER												
Inorganics												
Aluminum	--	--	--	13200.0	4170.0	14700.0	20400.0	2220.0	2700.0	453.0	7990.0	8520.0
Antimony	49.5B	--	--	9.6B	73.9	34.8	--	36.3	--	--	63.5	58.6
Arsenic	--	--	--	7.9	5.1	11.0	9.4	1.4B	3.2B	0.7B	27.7	8.5
Barium	73.4B	61.0B	72.2B	112.0	21.1	88.9	111.0	21.6B	38.2B	7.2B	82.4	68.9
Beryllium	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	--	--	--	1.3B	--	--	212.0	--	--	--	--	--
Calcium	148000.0	174000.0	157000.0	24300.0	103000.0	59700.0	18400.0	50200.0	4260.0	700.0B	120000.0	99200.0
Chromium	9.5B	7.2B	9.0B	18.7	11.5	24.3	68.0	6.5	--	10.1	15.9	75.0
Cobalt	--	--	--	5.7B	--	3.1B	8.8B	--	--	--	--	1.0B
Copper	--	--	--	26.1	9.8	25.4	81.0	7.9	8.1	--	10.5	192.0
Iron	2670.0	1550.0	1110.0	21300.0	12400.0	24500.0	41500.0	4440.0	2360.0	1220.0	48600.0	35400.0
Lead	--	2.9B	--	26.5	11.0	30.4	318.0	95.0	197.0	60.0	16.8	378.0
Magnesium	72200.0	104000.0	70400.0	12000.0	60700.0	35100.0	8560.0	19600.0	839.0B	271.0B	55700.0	45500.0
Manganese	72.8	81.3	61.1	569.0	292.0	597.0	678.0	57.4	30.5	9.5	920.0	2320.0
Mercury	--	--	--	0.12	--	0.04	0.53	--	--	--	--	--
Nickel	--	--	15.8B	20.8	13.2	25.9	44.8	3.3B	--	7.3B	14.3	--
Potassium	4900.0B	5350.0	5090.0	2310.0	1450.0B	2650.0	2600.0	953.0B	825.0B	309.0B	2950.0	2760.0
Selenium	--	28.0	--	--	0.4B	0.5B	--	0.4B	0.8B	--	--	--
Silver	--	--	--	--	3.5	2.1	0.7B	1.9B	--	--	4.0	3.5
Sodium	73100.0	179000.0	83500.0	102.0B	188.0B	101.0B	258.0B	253.0B	683.0	281.0B	107.0B	686.0B
Thallium	--	--	--	--	--	--	--	1.0B	--	2.0B	--	--
Vanadium	29.1B	73.2	34.1B	26.1	11.0B	29.5	40.3	4.7B	7.4B	1.4B	18.3	19.9
Zinc	71.6	19.5B	--	100.0	49.5	116.0	321.0	27.2	13.3	4.4B	50.6	191.0
Cyanide	--	--	--	--	--	--	--	4.8	--	--	--	114.0
Sulfide	--	--	--	--	--	--	--	--	--	--	--	--
Sulfate	162000.0	267000.0	164000.0	--	--	--	--	--	--	--	--	--
	(ppb)	(ppb)	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)

NOTE: The B qualifier indicates that the reported value is less than the CRDL, but greater than the IDL.